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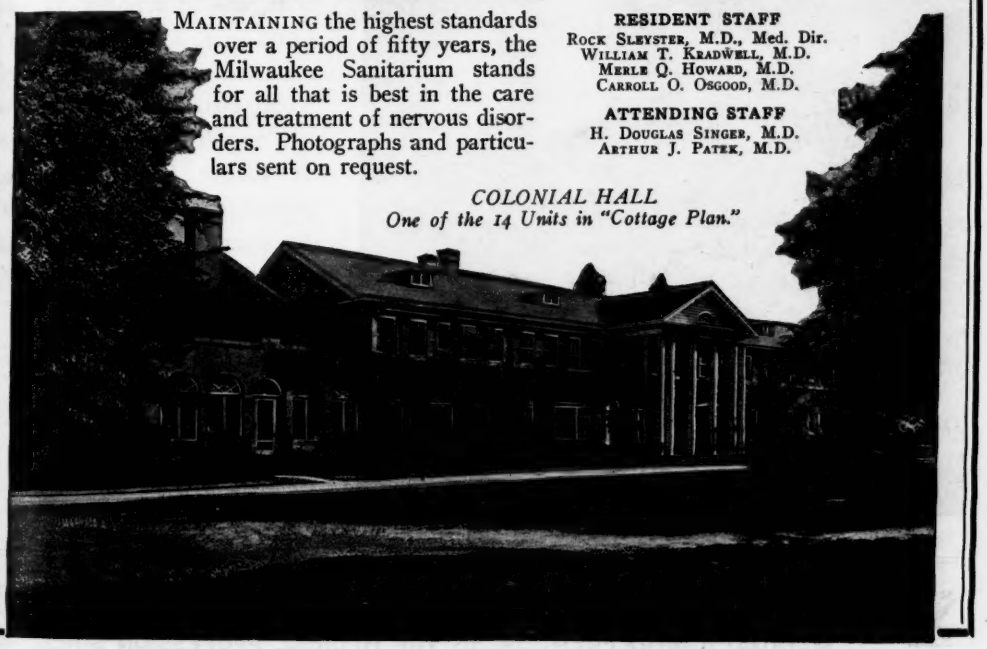

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ILLINOIS MEDICAL JOURNAL

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ILLINOIS MEDICAL JOURNAL

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Editorials

GOVERNMENT SUBSIDIES ARE SOCIALISM'S GIFTS TO ITS GODS—WITH "HEALTH INSURANCE AMONG THE BANNER DONATIONS"

Government subsidy is socialism's gift to its gods. Give a socialist a chance to gouge the government and *he is well on his way to a socialist's* heaven. For when you gouge the government, you gouge your neighbor, since what you and your neighbor have are all that is owned by the government. It may not always seem so, even though it is, and socialism, too, is like that.

Over in Great Britain what is called "national health insurance" is a gouge so subsidized by the British government and the British employer *that the important fact is* generally overlooked in discussions that not only is national health *insurance largely socialistic, but that the* evils in the system are due to this socialistic element.

And if anything can spread faster than erysipelas or cholera it is socialism in any form or manifestation.

The principle of health insurance—that those *who would* be unable to pay the cost of medical attendance in the ordinary manner should pro*vide for it by insurance—is not beyond* criticism. The evils of the socialistic element, as disclosed in the working of the system, have *frequently been described in this Journal.* An important question, for any country in which the introduction of national health isurance is contemplated is "*How far will the scheme be socialistic?*" Another question is "Supposing it is decided that a moderate subsidy from the state is necessary, *as in other countries,* what is the danger of the state, under political pressure, being compelled *to subsidize more and more and make the scheme more socialistic? In England, constant demands are being made on the state for more and more, and the expenditure is much greater than was originally proposed.* Moreover, there is the danger that under political pressure complete socialization of the medical profession may be

brought about. Under the socialist government this danger was so great that the British Medical Association brought forward a scheme of almost complete socialization, not because the Association or the profession wanted it but as a lesser evil than what might have been imposed by the government. With the crushing defeat of that government, this scheme has disappeared. But the socialist party remains active and no one would be bold enough to say that it may not be in power some day both in England and elsewhere. What may be expected from it is shown by the report in the *Lancet* of an address of Somerville Hastings, a laryngologist, who is a prominent member of the Socialist Medical Association, to the Lewisham Division of the British Medical Association.

Medical services, Hastings said, should be free to every one, payment for them being made out of the taxes on a whole time salary basis. Money is always a difficulty with patients; if the physician visits frequently, he is thought to be running up a bill; if he tries to avoid such a charge by staying away, he is reproached with neglect. The taxpayer admitted to a hospital would, if able, pay the full cost of maintenance there, but the medical charges would be covered by the taxes. Further Hastings referred to the services which in recent years have been removed from the province of the general practitioner and provided by the community — preventive medicine, infectious diseases, lunacy, treatment of school children, much maternity work, tuberculosis, venereal diseases. Rheumatism, orthopedics and cancer might soon be added, he said, and also at present the London County Council had no *outpatient departments attached to its hospitals, but they were coming.* There was too much time wasted by physicians in going round to see patients. Ill health cost the nation about $1,000,000,000. The preventive medical service cost $100,000,000 and the treatment services another $450,000,000. Hastings doubts whether the state is getting value for its expenditure. Under his scheme there would be unit services for 50,000 people and most of the work would be done in a central clinic by a staff of twenty physicians working in conjunction with specialists. Hospitals and convalescent homes would be attached to the clinics. Private practice would still be allowed to physicians who did not come into the service, but the aim would be to make this so attractive that rich and poor would flock to it.

Now like every other propaganda saturated "parlor-pink" this man Hastings, though trying to demolish the *source of the resources* assumes the continuance of the resources now provided by a society that still retains, in spite of socialistic adulteration, much of the efficiency of individualism. The complete socialization of the medical profession is not likely to be brought about without the complete socialization of everything else. If this ever should be achieved in any highly industrialized country the results would be much more disastrous than have followed the destruction of the capitalist system in the comparatively backward Russia. Mr. Hastings might ask himself the question With what efficiency does the Russian government supply the medical needs of the masses, or the much more important needs of food, clothing and housing? The fatal flaw in all socialistic schemes is that they take no account of the loss of efficiency due to removal of the incentive of individual advantage.

THE EIGHTY-FOURTH ANNUAL MEETING

The 1934 Annual Meeting of the Illinois State Medical Society was held at Springfield on May 15, 16, 17, 1934. The meeting was well planned, the weather fine, and the attendance was unusually good. All meetings and all exhibits were housed under one roof in the spacious Knights of Columbus Building.

The Pediatricians held their special meeting on Tuesday morning, with excellent papers, and a good attendance. It is their intention of making this an annual meeting, to be held on Tuesday morning when the regular sections are not in session.

The Oration in Medicine was given on Tuesday afternoon by Dr. Walter L. Bierring, of Des Moines, Iowa, and the Oration in Surgery was delivered by Dr. Frederic J. Cotton, of Boston, on Wednesday morning. Both of these addresses were excellent, and were well attended. All section meetings were well planned, and carried out according to the regular schedule.

There were an unusually fine lot of scientific exhibits at the meeting this year, which attracted much attention. It is the plan for the next annual meeting, to stimulate a greater interest in the preparation of scientific exhibits, and to give

proper medals or certificates for those which receive the highest approval of the scientific exhibit committee to be named by the Council.

The President's Dinner was held at the Abraham Lincoln Hotel on Wednesday evening, and was well attended. The Society was especially honored with the presence of Governor Henry Horner, who made an extemporaneous speech, which was well received.

The Mayor, and other officials of the city of Springfield, assured the members and guests that they were welcome, and special privileges were placed at their disposal. The Sangamon County Medical Society, Committee on Arrangements, with Dr. A. E. Walters as Chairman, was well organized and the local arrangements were all that could have been asked for.

The first meeting of the House of Delegates was held on Tuesday afternoon, and much business transacted by the House. At the second meeting of the House of Delegates on Thursday morning, the following were elected:

Chas. S. Skaggs, East St. Louis, President, to succeed Dr. Chas. D. Center, deceased.

Chas. B. Reed, Chicago, President-Elect.

A. E. Walters, Springfield, First Vice-President.

Elizabeth R. Miner, Macomb, Second Vice-President.

Harold M. Camp, Monmouth, Secretary.

A. J. Markley, Belvidere, Treasurer.

Dr. John S. Nagel, Chicago; E. P. Coleman, Canton; S. E. Munson, Springfield; I. H. Neece, Decatur; and C. E. Wilkinson, Danville, were elected to succeed themselves as members of the Council.

The following committees were elected:

Public Policy Committee

W. S. Bougher, Chairman.....Chicago
Chas. J. Drueck.....Chicago
George Michell .....Peoria

Legislative Committee

John R. Neal, Chairman.....Springfield
Thos. P. Foley.....Chicago
Edward Bowe .....Jacksonville

Medico-Legal Committee

R. O. Hawthorne.....Monticello
A. H. Geiger.....Chicago

Medical Education and Hospitals Committee

J. P. Simonds, Chairman.....Chicago
W. R. Marshall.....Clinton
H. O. Munson.....Rushville

Relations to Public Health Administration Committee

F. F. Maple.....Chicago
L. O. Frech.....Decatur
Thomas Meany .....Chicago
B. Klein .....Joliet
C. C. Rentfro.....Chicago

Delegates to the American Medical Association

C. J. Whalen.....Chicago
W. D. Chapman.....Silvis
J. J. Pflock.....Chicago
G. Henry Mundt.....Chicago
G. C. Otrich.....Belleville

Alternate Delegates to the A. M. A. (At large)

M. I. Kaplan.....Chicago
W. E. Kittler.....Rochelle
N. S. Davis.....Chicago
R. J. Coultas.....Mattoon
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John A. Wolfer, Secretary.....Chicago

Section on Eye, Ear, Nose and Throat

O. B. Nugent, Chairman.....Chicago
W. W. Gailey, Secretary.....Bloomington

Section on Public Health and Hygiene

Lloyd Arnold, Chairman.....Chicago
W. M. Talbert, Secretary.....Decatur

Section on Radiology

F. Flinn, Chairman.....Decatur
George M. Landau, Secretary.....Chicago

Secretaries' Conference

Elizabeth R. Miner, Chairman.....Macomb
C. D. Snively, Vice-Chairman.....Ipava
Donald W. Killinger, Secretary.....Joliet

One of the interesting features of the 1934 Annual Meeting was the fracture demonstrations which were given at regular intervals during the meeting, and which were unusually interesting and well attended. It is the intention of the Society to continue these demonstrations in the future, and perhaps add other interesting demonstrations along other lines.

At the closing session of the House of Delegates, invitations for the 1935 meeting were extended from Rockford, Moline and Decatur. Rockford was successful in getting the meeting,

and the date of the 1935 Annual Meeting will be set by the Council at its June meeting.

The Sangamon County Medical Society once more demonstrated the fact that they are the perfect hosts in Springfield, and everyone in an official capacity in Capitol City is ever anxious to make the members and guests of the Society feel at home while in their fine city.

BIRTH RATE FALLS BELOW PAR FROM CONTROCEPTIVE TEACHINGS OR ROUTINE OF DYING RACE

Ups and downs of the stock market have more of a pick-up variance than does the birth market. From all reports the birth rate seems on the downward trend without interruption. How much of this decrease is due to the modern thirst for methods of "birth control" and how much is from depreciation of the race is a moot question. The birth rate everywhere is forsaking accepted standards. Possibly the wider dissemination of contraceptive information may have something to do with this depression, since in the Netherlands where birth control clinics have long been maintained officially, and in Switzerland where such practices have been broadly winked at if not sponsored in the open, the birth rate for 1932 remains at its precedent level. It is significant that for 1932 the birth rate in Japan knew an increase of approximately 25 percent, or in round figures an increase of 1,007,868 in 1932, as against 861,534 in 1931.

In the United States the decrease was on a basis of 28.75 percent between 1921 and 1932; during the same interval Chicago's birth rate decreased 33 percent.

By figures this birth rate business makes a tale of brevity and interest. Officially the figures read in part:

In 1932, Germany, Italy and Poland had marked decline in the birth rate. In the German reich the number of living births receded by 53,600. In Italy the number of living births was 34,150 fewer than in 1931, so that in 1932 the birth rate for Italy was only 23.8 per thousand, as compared with 24.9 births the previous year and 26.7 births in 1930. In Poland in 1931, 50,000 fewer births were recorded, and in 1932 there was a further decline of nearly 34,000, so that the birth rate of Poland dropped, over the two-year period, from 32.3 (1930) to 28.7 per thousand of population.

In the remaining countries of western, central and northern Europe the decline in the birth rate ranged from 0.2 to 0.7 per thousand. France had a decline in its birth rate of only 0.2 per thousand. In Sweden and Hungary the birth rate was only 0.2 and 0.3 per thousand of population, respectively, lower than in 1931.

Great Britain and Czechoslovakia showed a decline of 0.5 per thousand and Austria a drop of 0.7 per thousand. Unchanged birth rates were recorded in the Netherlands and in Switzerland. The countries of lowest birth rates at present are the German reich, Austria, Sweden and Great Britain, with birth rates ranging from 14.5 to 15.8 per thousand. France (with a birth rate of 17.2), Belgium (18.1) and Switzerland (16.7) have in recent years passed out of the group of nations with the lowest birth rates. The birth rates in Norway (16.7), Denmark (18.0) and Finland (19.5), together with Lithuania and Estonia, range around that of France and in some cases exceed it. In countries bordering on this area, limitation of births is making further progress, particularly in Czechoslovakia, Hungary and Italy, which countries report, in contrast with former high rates, birth rates of from 21 to 24 per thousand, which are lower than the birth rate of the German reich in 1923 (26.9). The birth rates in the countries of the Iberian peninsula (28.3 and 30.7) and in eastern and southeastern Europe are still high. There appears to be evidence, however, that the demographic pressure of the Slavic races of the East will in the near future lose considerable of its force. *It may be added that in 1932 the population of Japan increased by 1,007,868 (in 1931, by 861,534.)* The Orient is keeping up its man power.

In Great Britain the Registrar-General's Statistical Review for 1932, shows that the birth rate for England and Wales was 15.3 per thousand, which was 0.5 below that for 1931, the lowest previously recorded, and therefore was a new low record. The death rate was 12 per thousand, 0.3 below the rate for 1931 but 0.6 above that for 1930, but the 1930 rate was the lowest ever recorded and was largely due to an exceptionally mild winter. The death rate of infants under 1 year was 65 per thousand births, as compared with 66 in 1931 and 60 in 1930.

Traffic accidents due to mechanical vehicles were responsible for 5,671 deaths, against 4,452,

5,196, 5,792, 6,342 and 5,892 in the preceding five years. The death rate from cancer was 1,510 per million living, against 1,484 in 1931. If allowance is made for the higher age constitution of the population, the increase becomes much smaller. Tuberculosis again furnished a new low record, 837 per million. Puerperal sepsis was the cause of 1.55 deaths per thousand labors, and other "accidents of pregnancy and childbirth" gave a rate of 2.49. The deaths from influenza numbered 13,156, against 14,409 in 1931, 5,019 in 1930 and 29,074 in 1929.

Here is a savory cud upon which the Statistician may chew.

If the Caucasian race expects to keep its head above water in world affairs these figures and their causes no less than their probable results will bear close investigation.

BIRTH RATES, U. S. A.

Decrease 1921-1932, nearly 28.75 percent.
Chicago decrease, 33 percent.

Year	1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922	1921	1920
U. S. A. ...	17.3	18.0	18.9	18.9	19.8	20.6	20.7	21.5	22.4	22.2	22.3	24.2	23.7
Urban	16.3	17.5	19.0	19.4	20.1	21.0	21.2	21.9	22.8	22.5	22.3	24.0	23.9
Rural	18.3	18.5	18.7	18.4	19.5	20.3	20.2	21.0	22.8	22.0	22.5	24.4	23.5
	13.98					Chicago							20.9

THE ATTORNEY GENERAL CONTESTS THE RIGHTS OF CORPORATIONS TO PRACTICE MEDICINE

The Attorney General of Illinois, Otto Kerner, has instituted *Quo Warranto* proceedings against the United Medical Service, a corporation practicing medicine in Chicago. The suit is now pending in the Superior Court of Cook County. A similar suit was won by the State's Attorney of Cook County last year and an appeal was prayed to the Supreme Court. However, the appellant, the losing corporation, withdrew its appeal before a decision was handed down.

The outcome of this suit is awaited with the greatest interest by the general public as no suggestion can be offered as to any public benefit that could come from putting the practice of medicine in the hands of corporations.

In the attorney general's *Quo Warranto* it is contended that the United Medical Service is operating in violation of the Medical Practice Act and that the practice of medicine is not lawful business in which a corporation may be engaged.

If corporations are to be allowed to employ doctors and to operate on the theory that the business side of the doctor's profession is to be separated from professional engagements, and such corporations may sell their stock at public sale, and have it listed on stock exchanges, the obligation of the individual doctor to the individual patient will be completely dissolved, and both the doctor and the patient will become victims of mere commercial money getting.

For thirteen years the Illinois State Medical Society has been working to have enacted a law that will prohibit corporations from practicing medicine. Here is a chronological epitome of the strenuous activity of the society members and committees and gives an idea of the expenditure of time, energy and money that has been disbursed in this direction.

Illinois Has Been Alert in Legislative Protest Against Corporations Practicing Medicine

THE BAR HAS DONE BETTER FOR ITSELF IN PROFESSIONAL PROTECTION

The justice of a law inhibiting corporations from practicing medicine has been up for demonstration more or less continuously before the legislative body of the State of Illinois by Illinois doctors for fourteen years.

Few lines of legislation have been more urgent. None is more pressing now. Of no active economic condition are physicians more acutely aware.

Failure met repeated efforts to secure the desired legislation. This is not necessarily calamitous. The writer continues convinced that if legislation now on the statute books can be and is enforced that the laws already enacted are sufficient. As in many other instances it is enforcement of the existing statutes rather than the enactment of new laws that is indicated. And enforcement, there is the rub.

For several years this has been said repeatedly in the editorial columns of the ILLINOIS MEDICAL JOURNAL. Enforce the legislation we have

now and stop the practice of medicine by corporations.

Among the active measures taken by doctors in Illinois to prevent corporate practice of medicine may be mentioned;—

Senate Bill No. 362 introduced in 1921 by the late Senator Wheeler;

Senate Bill No. 291 introduced in 1927 by Senator Mason;

Senate Bill No. 231 introduced in 1929 by Senator Searcy of Springfield.

Let us look to the fate of these bills.

Senate Bill No. 362 was tabled in the committee on Public Health and Hygiene. Remembered very well is this hearing in that a nationally prominent lawyer and a member of the Board of the Public Health Institute appeared in opposition to the bill. He became quite heated in his arguments against the bill and told the senators "that it did not make any difference to his organization whether they passed the bill because even if it became a law they would not pay any attention to it." He probably knew his committee for the Bill was tabled.

As to bill No. 291 we worked very hard on it and had it reported out favorably from the committee and it was on the third reading of the Senate before the opponents had it tabled.

As to bill No. 231 similar to the preceding bills that Senator Searcy introduced this bill was also tabled in the committee.

For several years it has been the editor's contention that possibly we do not need a special law to deny corporations the right to practice medicine.

Emphasizing the statement that enforcement of current statutes would inhibit corporations practicing medicine let attention be called to the fact that the Medical Practice Act specifically sets forth exactly who may practice medicine in this state, item by item, and the word "corporation" is not included in it. This would indicate clearly that we do not need a law but rather an enforcement. But how can you enforce a law if attorneys, practicing barristers, supposedly executives and elucidators of the law, calmly enform the men that make the laws that they as attorneys and the bodies they represent do not intend to pay any attention to the laws!

This you will note was the comment made by a lawyer and a member of the board of the Public Health Institute when Senate Bill No. 362 was up.

About three years ago the Supreme Court of the State of Illinois handed down a decision that had been before them for several years and that denied the banks the right to practice law. That all lawyers do not think like the Public Health Institute representative is indicated by the steps that lawyers have taken to protect the individuality and rights of their own profession in the Illinois statute prohibiting corporations from Practicing Law passed by the General Assembly of Illinois in 1917.

This excerpt from the act is taken from Section 234 of Chapter 32 of Cahill's Illinois Revised Statutes:

Be it enacted by the People of the State of Illinois, represented in General Assembly: It shall be unlawful for a corporation to practice law or appear as an attorney at law for any reason in any court in this State or before any judicial body, or to make it a business to practice as an attorney at law for any person in any of said courts or to hold itself out to the public as being entitled to practice law or to render or furnish legal services or advice or to furnish attorneys or counsel or to render legal services of any kind in actions or proceedings of any nature or in any other way or manner to assume to be entitled to practice law, or to assume, use and advertise the title of lawyers or attorney, attorney at law, or equivalent terms in any language in such manner as to convey the impression that it is entitled to practice law, or to furnish legal advice, furnish attorneys or counsel, or to advertise that either alone or together with, or by or through, any person, whether a duly and regularly admitted attorney at law or not, it has, owns, conducts or maintains a law office, or an office for the practice of law or for furnishing legal advice, services or counsel.

THEY ARE REACHING OUT FOR THE MEDICAL PROFESSION FOR AN EASY RIDING BUCKBOARD

John A. Kingsbury, secretary of the Milbank Fund, speaking at the National Conference of Social Workers in Kansas City on May 26, 1934, attempted to show a method by which the American people could secure adequate medical and

hospital care without resorting to State Medicine.

The studies in progress to this end that are being made by the Milbank Memorial Fund, a New York Philanthropic foundation, were explained by Mr. Kingsbury as devoted to finding a way to assure medical care, particularly for the great majority of citizens who occupy positions in the lower income brackets.

The plan as evolved thus far, Mr. Kingsbury said, "sets up an American method to mutualize medical costs through compulsory health insurance." What the foundation executive was quick to explain was the "wide difference" between the Milbank plan and "State Medicine" or the "Socialization of Medical Practice." "Contrary to the socialization scheme which describes tax supported medical work of the federal government, State, Counties and Cities, the Milbank plan is based on continuing the present political-economic system," asserted Mr. Kingsbury.

This contention by Mr. Kingsbury is interesting and may we be pardoned if we write "Methinks the gentleman doth protest too much!" Some differences are in accent rather than in actuality.

Others beside this JOURNAL hold this belief. Listen also to William Trufant Foster, a well known economist, appearing before the American Academy of Political Science and the College of Physicians of Philadelphia, February 7, 1934, and the gist of whose speech runs: "It is folly to burden physicians any longer with business affairs which they have notoriously mismanaged and for which they are not trained; in which they are not interested and which interfere with that single hearted devotion to patients which is the glory of their profession." The inference gained from Mr. Foster's statement is that medicine should be taken over by the state, so that the "poor physician" may be treated like an imbecile.

The Milbank Fund directors and scores of other foundation managements, together with philanthropists and politicians are again advocating compulsory health insurance. They are proceeding at an alarming rate along the road that leads to socialization of medicine. It will not be long before measures looking in that direction will be coming before state legislatures. Powerful forces are behind these measures. All that the doctors will have to do to insure these measures success will be to do nothing. When the physician wakes up to find that he is only a hired man sent here and there by some civilian official it will be too late, and this warning should not need repetition.

At the Michigan State Medical Society meeting held in Flint, Michigan, on April 12, 1934, preliminary endorsement was given to a system of voluntary health insurance entitled *"Mutual Health Service."*

Beginning in 1916, Illinois doctors inaugurated a campaign of education against Compulsory Health Insurance. Our educational propaganda against compulsory health insurance was energetically carried on over a period of years culminating in 1922 in the passage of a resolution at the New Orleans meeting of the American Medical Association in which the parent organization condemned outright the idea of compulsory health insurance in America.

The doctors of Illinois must assume again a militant attitude so as to prevent the establishment of compulsory health insurance in order to avert a repetition in the United States of the disastrous consequences that attended the adoption of Health Insurance in other countries.

This is not a cry of "WOLF." It is the warning of "PLAGUE!"

The theorists and politico jobbists wreaked upon this long suffering credulous nation the curse of prohibition, or rather of prohibition laws that could not be enforced, but bred a race of criminals. With that invidious law repealed, the parlor pinks need a new vehicle. They are reaching out for the medical profession for an easy riding buckboard.

THE REPORT ON "MATERNAL MORTALITY" AS ISSUED BY THE NEW YORK ACADEMY OF MEDICINE MAY GO DOWN IN HISTORY AS THE BIRTH OF THE BOOMERANG

The medical profession is beginning to show signs of possible recovery from the terrible epidemic of "reportitis" that has been raging from lecture room to hospitals. A few doctors are commencing to wonder about the art of talking too much.

And the best of it is that recuperation is commencing from the seat of one of the most vital

and acute attacks. It would seem to be an introvertive inflammation.

The "report on Maternal Mortality" as issued by the New York Academy of Medicine may go down in history as the birth of the boomerang. The New York Academy of Medicine, the Medical Society of the County of New York and the New York Obstetrical Society held a joint meeting on March 7 to do a little hammering on the topic of maternal mortality in New York City. The savants who spoke all implied that the lay publicity upon their report had given a false impression. Among other things they insisted that the word "preventable" was misunderstood, and that they did not mean to imply that midwives were better than doctors, and that they did not mean to infer that all the deaths on the list occurred because the physicians were careless or untrained.

However, nobody made any apology. As one man who attended wrote, "the meeting was so long and so scientific that one was either impressed with the dignity of the occasion or else he was so played out by the end of the meeting that he didn't feel that his words of criticism would carry any weight." The worst part of that report is, that no matter what the doctors think and feel about it, the lay public is convinced that it was a great scientific document which recommends to all prospective mothers a midwife in the home rather than an obstetrician in a hospital.

THE MEDICAL PROFESSION MAY RECEIVE FROM THE NEW DEAL THE SAME SORT OF JOKER RUSSIAN PHYSICIANS WERE DEALT UNDER LAY DICTATORSHIP

The medical profession must be on the alert to guard against receiving from "The New Deal" the same sort of joker as has been dealt out to Russian physicians under the lay dictatorship and governmental bureaucracy of the soviet.

To the cagey nostril there is more than a suspicion of soviet scent in the perspective upon the profession that seems to be inherent in the "New Dealers."

"Doctors, Beware!" is the maxim that should hang in every doctor's mind and heart in these hey-days of the new deal.

That medicine is a thing apart, a science that can not be learned in an instant nor thrown aside in an hour, is an element of knowledge that some of our keenest politicians and would-be philanthropists seem unable to learn.

Over in Russia where the doctor has been fed up with lay dictation and bureaucracy for some time, there is a distant rumbling as if the soviet was about to be educated in some respects, quite in spite of itself.

Physicians in the soviet would seem to be about to give a spectacular example of the worm in process of turning.

In some instances even the Russian press, sadly subsidized and sovietized as it is, has started to lend a hand to those sad underdogs, the soviet physician.

Insufferably poor living and working conditions, and lack of medicine and medical facilities, too much governmental intereference, too much lay dictation and unlimited areas of social service are a few of the handicaps of the "free" physician under the soviet.

Here is a beautiful example of the science of medicine being practiced by politics and by the laity. Technicians get especial privileges. For them is the closed co-operative store, the rest homes and all the other socialistic perquisites of the U. S. S. R. Even the veterinarian gets a helping of this "sugar." None of this comes the way of the physician who is compelled to undertake excessive quantities of extraneous labor, dictated to by ignorant committees with a thousand hampering details and given none of the privileges that are their due when it comes to food and housing facilities.

There is a new commisar for public health, George Naoomovitch Kaminsky, upon whom the press in part has called to "put a stethoscope to the chest of the medical profession and to do something to correct these ills."

The *Evening Moscow* has even gone so far as to publish excerpts from what is said to be the "Diary of a Physician," and these say in part:

"Page 1. Who are we? The newspapers call us the Commanders of Soviet Medicine, or 'the engineers of the medical industry,' or 'the steersmen of the public health.' But when this 'steersman' goes to the president of his house committee with a timid request for some of the facilities which engineers and technical workers enjoy he is told that he is 'an ordinary employe.'

"'To whom do you give medical assistance?' 'To the people.'

Veterinaries Enjoy Privileges

"'That's just too bad for you. According to the existing regulations only veterinaries enjoy the privileges of engineers and technicians.'

"When I examine the heart of a patient I keep thinking to myself: 'I wish it were a horse.'

"Page 2. Behind the door the patients are waiting. Some of them cough, some sneeze, those with rheumatism groan. And I sit and do social work. I am writing letters suggesting that people purchase medical literature. As soon as I am through with my patients I must run around to various houses and distribute these letters. A nice job for a specialist of eighteen years standing.

"All doctors working in the ambulatoria—dentists, oculists, surgeons, gynecologists—are attached to households and must visit apartments to look for lice in the dirty linen. No one would think of sending an engineer to polish floors as 'social work.'

Often Reprimanded

"We who have refused to hunt lice are called 'antisocial elements' and have been reprimanded and threatened with expulsion from our trade union. And so the doctors must obey. They distribute letters, hunt lice, perform disinfections and have no time to read current medical literature.

"Page 3. A doctor who works in an ambulatorium must examine eighteen patients daily. But in fact we have to receive thirty-five. The patient has not even time to undress himself. Today I had to listen to a heart through a heavy overcoat.

"Page 4. Again I read in the papers that we are the 'engineers of the medical industry.' But the engineers have their closed cooperative stores, their rest homes and their evening coffee. And we who work in the big hospitals dream only of having a decent buffet.

"Page 5. I ask a patient 'where is your complaint?'

"'At the ambulatory.'

"'No, I mean why are you complaining?'

"'Because I have been sick eight days. I have called a doctor three times. One said I had lagrippe, another that I had typhoid fever, and the third said I wasn't sick at all.'

Can't See Patients

"This is probably true. What diagnosis can I make when I don't see the patient at the beginning of his illness and I know that I won't see him at the end of it. I have simply become a bureau for issuing slips which will later enable the patient to receive his insurance money."

THE PRACTICE OF MEDICINE, ITS PERILS AND ITS PITFALLS

Medicine finds itself today confronted with: 1. Threatened government control with all the ramifications of politics, lay dictation and hampering bureaucratic red tape, and complete scientific failure.

2. Usurpation of medical practice by law endowed or tax supported or otherwise financially aided institutions in which the scientific practitioner is no longer a free agent but a subdued and subsidized subordinate.

3. Almost complete annihilation of that indispensible ingredient in the public health and welfare, the general practitioner.

4. A shamelessly shameful misrepresentation before the public it serves.

5. Practical deprivation of the same professional rights as are demanded by any expert mechanician, merchant or agricultural worker.

6. An average rate of payment for services rendered that is greatly below that enjoyed by the bulk of the United States citizenry.

COMPLETED TASK

Forever finish right your task
  Though minute details irk,
Nor should an hour be wrongly saved
  By placing faulty work.
A perfect thing is e'er a joy;
  Forget the care it bore,
What matters if you tear it out
  A dozen times or more?

The labor wrought will be forgot
  Within a year or two
While jobs left poorly fitted will
  Forever torment you.
Your eyes will tire of seeing an
  Imperfect piece of work,
And you will scorn the empty hour
  Which prompted you to shirk.

—EFFIE M. WATT.

Correspondence

AN INTENSIVE STUDY OF FAMILIES INTO WHICH CONGENITALLY MALFORMED INDIVIDUALS HAVE BEEN BORN

The Gynecean Hospital Institute of Gynecologic Research of the University of Pennsylvania, is conducting an intensive study of families into which congenitally malformed individuals have been born.

Special interest centers in families in which malformations have appeared in two or more children. Physicians who have knowledge of any such families are urged to communicate with:

Dr. Douglas P. Murphy,
Gynecean Hospital Institute,
University of Pennsylvania,
Philadelphia, Pa.

NOT THE WORK OF THEORISTS OR SOCIOLOGISTS

J. G. Crownhart in the Wisconsin Medical Journal says: If we may return now to the history of medicine, let us recall with some fitting pride that no statistician brought the people of this country protection against smallpox. Let us remember that the great decline in infant deaths from diphtheria was the result of the theories of no sociologist. Typhoid fever has been wiped out of our homes, but the discovery of the causation of typhoid fever can be attributed to no educator. Hospitals have had no bank holidays. Physicians have declared no strikes.

AMERICAN MEDICAL GOLFERS PLAY IN CLEVELAND, JUNE 11

The American Medical Golfing Association will hold its twentieth annual tournament at the Mayfield Country Club in Cleveland on Monday, June 11, 1934.

Thirty-six holes of golf will be played in competition for the fifty trophies and prizes in the eight events.

Dr. Homer K. Nicoll of Chicago is president and Dr. Charles Lukens of Toledo and Dr. John W. Powers of Milwaukee are vice-presidents of the American Medical Golfing Association, which was organized in 1915 by Dr. Will Walter, Dr. Wendell Phillips and Dr. Gene Lewis, and now total 1,100 members representing every state in the union.

The Mayfield Country Club of Cleveland is described by Chairman Morgan as "probably the finest course in the district, and certainly one of the most interesting. Many championships have been held on this course, and visiting doctors will be delighted with it in every sense of the word. It has a most beautiful club house, and we can promise a merry nineteenth hole and a dinner fit for a champion."

Application for Membership

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the Executive Secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank. Participants in the A. M. G. A. tournament are required to furnish their home club handicap, signed by the secretary. No handicap over 25 is allowed, except in the Kickers'. No trophy is awarded a Fellow who is absent from the annual dinner.

The twentieth tournament of the American Medical Golfing Association promises to be a happy affair, attended by some 200 medical golfers from all parts of the United States.

SEVEN YEARS OF THE WOMAN'S AUXILIARY IN ILLINOIS

The first published mention of a woman's auxiliary to the Illinois State Medical Society is found in the July, 1927, issue of the Illinois Medical Journal on the pages carrying the official minutes of the Society's 77th Annual Meeting which was held in Moline, Illinois May 31, 1927. It follows:

Dr. J. T. Gregory: I wish to offer the resolution: "Whereas, at the meeting of the American Medical Association at St. Louis in 1922, by the sanction of the House of Delegates, there was formed the Woman's Auxiliary to the American Medical Association, "Whereas, at this time there are 22 states with actively functioning auxiliaries, with seven in the process of formation, "Whereas, in many states where the woman's auxiliaries are formed the women are assisting the medical profession in many educational, legislative and other programs; therefore be it *Resolved* that 1, The House of Delegates of the Illinois State Medical Society endorse the organization of a Woman's Auxiliary within the State of Illinois; 2, that all delegates will impress on their respective societies the importance of co-operating with the movement; 3, that the individual members of the Society be urged to tell their wives of the value of such a co-operative society to the medical profession and induce them to assist in the movement; 4, that the women be urged to start their organization at this meeting."

Dr. Gregory then offered the resolution as a motion. It was seconded by Dr. John R. Harger and carried. Later that evening Dr. William D. Chapman, Chairman of the Council and Dr. H. M. Camp, Secretary of the Society, conferred with Mrs. W. D. Chapman and Mrs. G. Henry Mundt with a view to assembling a group of doctors' wives for the purpose of considering the organization of an Auxiliary. The result of this conference is told in Mrs. Mundt's own words:

"As it was the last day of the meeting many had left but Mrs. Chapman and I succeeded in bringing about 25 ladies together. An informal meeting was

held and the doctors who were present suggested that a temporary organization be formed. As the organization was only temporary the most that could be done was to try to interest the doctors and their wives and to organize the counties which desired an auxiliary.

"The first thing that was done was to send letters to all the county presidents, secretaries and state councilors and officers asking their support and asking them to assist by suggesting names of women who might be interested in organizing. This involved the sending of more than 200 letters. The first request to assist in organizing came from Dr. Ralph Peairs of Normal (McLean County). He invited me to Bloomington to talk at a luncheon at which time an Auxiliary was formed."

Such was the beginning of women's auxiliary activity in Illinois which now has a State auxiliary with a membership of 535 women in 16 organized county auxiliaries.

Mrs. G. Henry Mundt of Chicago became the first president of the Woman's Auxiliary to the Illinois State Medical Society and served two one-year terms. While in office she organized eight county auxiliaries as well as six of the branches and the central auxiliary to the Chicago Medical Society.

From the first the Auxiliary women endeavored to enlighten themselves in regard to the problems of organized medicine. As early as this they participated in protests against the Sheppard-Towner Bill.

At this time Dr. Harold M. Camp wrote: "The Auxiliary is no longer an experiment but a proven factor for good."

Mrs. John R. Neal of Springfield became the President for 1929-30. During her administration the work of organization was continued. Mrs. Neal urged that members must at all times keep in mind that they are an auxiliary to the medical profession and that they should "make an earnest effort to cooperate with and be advised by the medical society." She pointed out that doctors' wives should keep well informed on health movements in women's clubs and she emphasized the value of their contacts and the use of the Speakers' Bureau of the Educational Committee.

Dr. F. O. Fredrickson, at that time President of the State Medical Society, wrote, "In travelling over the state visiting the various county medical societies, I have observed that the ladies are becoming more and more interested in medical affairs, particularly in the matter of organization, contact with lay groups, and legislation affecting the medical profession as well as the public health. They have formed study groups in order that they might become more familiar with these questions. They have sponsored meetings to which have been invited representatives of all women's organizations."

In 1930-31 Mrs. R. K. Packard of Chicago became president. During her term of office the final draft of By-Laws was completed and adopted. The various Standing Committees as they exist at present were formed and their definite policies and duties were outlined. Twelve counties now stood on the organized list.

In an article entitled "What Is It All About?" Mrs. Packard wrote, "It seems that the paramount objective is the preservation of health by prevention of disease and education of the public on health matters and the securing of better medical legislation. These objectives fit all communities and all classes."

Mrs. T. O. Freeman of Mattoon served as president in 1931-32. With the assistance of the various committees the President planned definite programs for the county auxiliaries which could be used at each meeting. These consisted of references to special articles in the ILLINOIS MEDICAL JOURNAL to be reported on and a number of articles on interesting medical subjects prepared by members and suggestions for entertainment.

The Illinois Medical Society having endorsed *Hygeia,* the Board requested that the counties take up the promotion and study of the magazine. A special *Hygeia* committee was formed.

The publicity chairman was requested to assemble clippings for a record book for future reference.

Mrs. Freeman wrote, "I believe the Auxiliary is an organization that should be putting on new growth always, not essentially in numbers but in the type and scope of its activities and—equally important—new things must be taken on slowly and thoughtfully."

In 1932-33 Mrs. E. W. Mueller of Chicago was President. During her term of office a record card system was established for the use of State officers. The By-Laws were published in pamphlet form and distributed to individual members. A uniform county fiscal year beginning March first was established to conform with that of the National organization.

Mrs. Mueller stated, "Our most important work is to become so well informed that we can at all times be intelligent representatives of the aims and purposes of organized medicine. In this connection it is perhaps *apropos* to suggest that we should continue to be known as the wives of our physician husbands and not let it be said that we are attempting to supplant them by permitting them to be designated merely as Auxiliary husbands."

During the present year Mrs. Solomon Jones of Danville is serving as President. The annual report of the year's work will appear in a later number of the ILLINOIS MEDICAL JOURNAL. The State Board of Directors and the county organizations have worked willingly and diligently to carry out their duties. The officers of the Illinois Medical Society have given whole hearted cooperation and the Advisory Committee has constantly guided the Auxiliary in all its undertakings. At all times the Educational Committee of the Illinois State Medical Society has given valuable service.

Ms. Jones states, "And too it seems to me that our units through the repeated statements of the county presidents are convinced as never before of the real value and merits of the auxiliary movement and more women are being found willing to assume leadership. The accumulation of seven years of pioneer service given by *us all* in promoting the ideals of the Auxiliary

is responsible for everything we have accomplished this year."

Mrs. Michael L. Mason,
Chairman Archives Committee.

*Material in article compiled from the files of the Auxiliary.

REPORT OF THE SEVENTH ANNUAL CONVENTION
WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY.

Delightful entertainment, courteous hospitality and happy, interested women in pretty frocks, many of whom were novitiates, featured the seventh annual convention of the Woman's Auxiliary to the Illinois State Medical Society, which was the largest in the history of the organization.

The state president, Mrs. Solomon Jones, of Danville, had so planned her program from the first to the last, that there was never a dull moment, and attention was the watchword. If one turned her head for a brief remark to her neighbor in the next chair, she found she had lost out on some interesting discussion taking place on the convention floor, perhaps she failed to hear how Mrs. A. B. Middleton, of Pontiac, organized the counties in the second district so successfully, or why Mrs. W. M. Hamilton, of Odin, found so much fun in her work in the seventh district, that the mere telling of it kept the convention in an uproar of laughter.

At the Tuesday get-acquainted luncheon at the University Club, with Mrs. John F. Deal in charge, Mrs. E. P. Sloan of Bloomington, state program chairman, discussed her branch of the work at the special table of guests and Mrs. W. R. Cubbins, Chicago, elucidated the work of the public relations committee at another, while county presidents exchanged problems at still another table.

The convention proper opened at one-thirty P. M. Tuesday in parlor K. of Abraham Lincoln Hotel, with the president, Mrs. Jones, in the chair, and Mr. W. R. Roades of Toledo acting recording secretary in the absence of Mrs. J. A. Wolfer of Chicago, who was too ill to attend.

The invocation was given by the Rev. Dr. Hildebrand. Robert Irwin, secretary of the Chamber of Commerce, delivered an address of welcome, and Mrs. W. R. Cubbins responded delightfully for the Auxiliary. Mrs. D. J. Evans of Aurora led the singing of a welcome song, to the tune of Just a Song at Twilight:

"Just a song of welcome
Just a song of cheer
Just to say we're happy
That we all are here.
We hope to have a nice time
Here's a greeting true
And a hearty welcome for
Everyone of you."

A brief but inspiring talk by the president at the large attendance, and active cooperation of the Auxiliary members, added much of interest to the opening of the first business session.

Mrs. F. P. Hammond was appointed timekeeper, and Mrs. E. E. Hagler, parliamentarian. A Resolutions Committee composed of Mrs. Philip Kreuscher, chairman, Mrs. E. B. Colley, and Mrs. W. R. Cubbins, was named. Telegrams of regret for the illness and absence of Mrs. Wolfer, recording secretary, and Miss Jean McArthur, secretary of the Educational Committee of the Illinois State Medical Society, were sent.

Reports of officers and councilors followed, which were indeed gratifying. At this point the communications from California were read, having first been presented to the board and action approved. Convention, through Mrs. Kreuscher, framed a night letter under advisement of Dr. Ferguson—cooperating with medical men—in getting P. T. A.'s to revise methods of Summer Round Ups. Announcements by the committee chairman, Mrs. H. B. Henkel, Springfield, closed the first session at 3:00 o'clock when the ladies repaired to the Governor's Mansion for tea, and a delightful musical program composed of a local quartette, and vocal numbers by (Mrs. David J.) Louise Tiffany Evans, soprano, of Aurora, accompanied by Mr. O. E. Ehrhardt. Mrs. Evans sang an aria, "Ave Marie" from The Cross of Fire—Max Bruch, Sunlight Waltz Song—Harriet Ware, and Spring—Jensen. Mrs. O. F. Maxon assisted, by her committee, presided over the tea.

At seven o'clock the ladies assembled in formal attire at the Roof Garden of the Elks Club for a bridge dinner, Mrs. Jones pdesiding, and has as speakers, Dr. Philip Kreuscher, president of the State Medical Society, and Dr. R. R. Ferguson of the State Advisory Committee.

One of the points stressed by Dr. Kreuscher was that the Woman's Auxiliary should occupy first place in the club life of the members; that they should be informed about the profession, and be, therefore, able to discuss health subjects in other clubs, to which he urged women to belong, and carry matters beneficial to their husband's profession to these groups in order to offset vicious propaganda.

Dr. Ferguson proved himself most interesting and worthy of his title, adviser. He believes thoroughly in the Auxiliary, and the high-light of his advice was that a much-needed piece of work of creating funds for indigent families of physicians would be undertaken by the Woman's Auxiliary, which he predicted would enjoy a rapid growth now that so many doctors and their wives were becoming familiar with the benefits. Clever badinage was indulged in by the two speakers, which added much merriment to the occasion.

A social game of bridge followed with prizes for each table. Mrs. D. J. Lewis and Mrs. Herman Cole were in charge of this delightful evening's entertainment.

A breakfast at 8:00 o'clock Wednesday morning in Abraham Lincoln Hotel, where the downstate members of the board were hostesses to the Chicago members, marked the beginning of the busy second day of the convention.

At 9:00 A. M. the convention was called to order by the president and the highly interesting and varied work of the organized counties was given by each county president, and were illuminating as to the ad-

vancement made and the initiative shown by the respective units.

The reports of the chairmen of Standing Committees followed, each of which deserves attention in the report because of their meritorious accomplishments, but space forbids this. However, the reports of Mrs. W. R. Cubbins, Chairman of Public Relations Committee, and Mrs. J. P. Simonds, Chairman of Press and Publicity, must be especially mentioned because of the vast amount of work done in their departments. That of Mrs. Simonds in preparing a large amount of material for publication in the Illinois State Journal, relating to the Woman's Auxiliary proceedings, and the voluminous file and its accomplishments brought forth a resolution of appreciation from the convention. The outstanding work of Mrs. Cubbins has been duly recognized and much of her work has already been published in the Journal.

The proposed revision of the constitution, which has been ably handled by Mrs. E. W. Mueller, of Chicago, was read and adopted.

The corresponding secretary, Mrs. E. B. Coolley, of Danville, reported the delegates to the National Convention as follows:

Mrs. W. D. Chapman, Silvis.
Mrs. A. E. Edison, Chicago.
Mrs. W. R. Cubbins, Chicago.
Mrs. G. H. Mundt, Chicago.
Mrs. H. I. Conn, Newman.

Alternates:

Mrs. J. P. Simonds, Chicago.
Mrs. N. M. Percy, Chicago.
Mrs. J. A. Wolfer, Chicago.
Mrs. A. E. Dale, Danville.
Mrs. H. W. Grote, Bloomington.

Mrs. Kreuscher presented resolutions of regret at the passing of Dr. Center to be sent to Mrs. Center. Also resolutions regretting the illness and absence of Mrs. Wolfer and Miss McArthur were sent.

A resolution of appreciation of the courteous hospitality the ladies of Springfield had accorded us and of praise for the efficient management of all details for our business, comfort and entertainment was adopted.

A satisfactory report of a special committee's work, headed by Mrs. Lucius Cole, President-Elect, on a survey of the relation of physicians' wives to women's clubs in general, and their activities in relief work was made by Mrs. Cole, showing a vast amount of labor involved in the collection of this data.

Mrs. H. I. Conn, first vice-president, took the chair while Mrs. Jones, amid a silence that was intense, made her president's report, which was received with loud acclaim. She called attention to a booklet, fresh off the press, "The First Twelve Years, 1922-1934," compiled by the national Auxiliary Historian, Mrs. Willard Bartlett of St. Louis. Mrs. Jones quoted from this book the edifying outline of auxiliary's objective: "To extend the aims of the medical profession through the wives of doctors, to the various women's organizations which look to the advancement in health and education, to assist in entertainment at all medical conventions, to promote acquaintanceship among doctor's families so the closest fellowship may exist."

At the close of the report Mrs. E. W. Mueller, past president, came forward, and in well chosen words presented Mrs. Jones with a President's Pin. Mrs. Jones, with her usual sincerity and charm, made a fitting response.

The report of the nominating committee was then heard, and the following ladies were declared elected in the respective offices:

President-Elect—Mrs. W. D. Chapman, Silvis.
First Vice-Pres.—Mrs. W. R. Cubbins, Chicago.
Second Vice-Pres.—Mrs. H. I. Conn, Newman.
Third Vice-Pres.—Mrs. Meyer Solomon, Chicago.
Recording Secretary—Mrs. A. B. Middleton, Pontiac.
Treasurer—Mrs. F. P. Hammond, Chicago.
Councilors:
Second District—Mrs. E. E. Beatty, Pontiac.
Fourth District—Mrs. F. E. Bollaert, East Moline.
Fifth District—Mrs. M. B. Jelliffe, Springfield.
Sixth District—Mrs. F. T. Brenner, Quincy.
Ninth District—Mrs. E. W. Burroughs, Harrisburg.

Mrs. Jones then called the new president, Mrs. Lucius Cole, to the platform, and graciously tendered her the gavel with her best wishes for a splendid year. Mrs. Cole accepted the gavel in a happy manner.

In the passing of each president and her administration, each has made a distinct contribution to the progress of the Auxiliary, and helped to spread the knowledge of its value to the medical profession, each in a different way, but rarely is it given to one woman to possess such ability for hard work, such earnest enthusiasm to inspire women to do their duty, as was demonstrated by Mrs. Jones and reflected in the year's reports.

The 1934 convention closed with its crowning event, the President's luncheon in the ballroom of the Abraham Lincoln Hotel, honoring Mrs. Jones with the newly seated president, Mrs. Cole, in the chair. She introduced Dr. Walter Bierring, Pres.-Elect of the A. M. A., who was the guest speaker of the occasion, after which she presented Mrs. Jones for the President's address which is published elsewhere in this issue, of the Illinois State Journal. At her concluion Mrs. H. I. Conn made the presentation to Mrs. Jones of a beautiful silver platter, the gift of her board of directors. Her response, feelingly given, expressed her gratitude and pride in her board who had stood by so loyally throughout the year.

Thus was brought to a close the convention proper, much of the success of which was due to the Springfield members of the state board, Mrs. H. B. Henkel, Mrs. John R. Neal, with Mrs. M. B. Jelliffe of Springfield, chairman of the entertainment committee.

The ladies of the convention attended en masse the President's Dinner and Dance of the Illinois State Medical Society, at 7:00 o'clock in the ballroom of the Abraham Lincoln Hotel, where sons and daughters of the profession gave added charm and beauty to the occasion which was presided over by Dr. John R. Neal

and addressed by Dr. Kreuscher, the retiring president, and Governor Henry Horner.

Respectfully submitted,

Mrs. E. B. Coolley,
Retiring Corresponding Secretary.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

Closing Message of State President, Mrs. Solomon Jones

We have come to the close of the year that marks the Seventh Anniversary of the Woman's Auxiliary to the Illinois State Medical Society.

Before we turn another page in our history it would seem the opportune time to pause and consider for a moment how far have we traveled and in which direction are we going.

During these years of pioneer service the doctors who have known us best have believed in and trusted us. We have endeavored to keep that faith by counseling Miss Jean McArthur, Executive Secretary of the Educational Committee and through the endorsement of all plans by our Advisory Committee.

Our hearts were lightened early last fall when Dr. Philip H. Kreuscher, President of the Illinois State Medical Society, gave out this statement: "I wish that I might say to the women of Chicago and the entire state of Illinois, that I feel the Woman's Auxiliary has passed the formative stage; the period of experimentation is over. You now have a real job to perform. Complete co-operation and unquestionable loyalty are essential. The wife of every doctor should enlist in this undertaking."

Some weeks later, Dr. R. R. Ferguson, Chairman of our Advisory Committee, in addressing the Auxiliary to the Chicago Medical Society, frankly stated that "County Medical Societies need us," and he gave many reasons why. This address, under the title "Medical Economics" appepared in the February issue of the State Journal, and has proven one of the most convincing arguments ever given. Our National President, after having read Dr. Ferguson's Article, requested sufficient number of reprints that she might send a copy to each of her State Presidents and members of her board. We cheerfully complied with this request.

From many sections of the state there is evidence of a growing interest in the Auxiliary movement. We are encouraged to believe, as the clouds of the depression continue to lift, that many county societies are planning to invite our organization. Then and then only will Illinois be able to march up to the head of the procession with the other thirty-nine Auxiliary states and the District of Columbia, who are working heart and soul in the interest of humanity and organized medicine.

To you, the doctors' wives who are here from unorganized counties, we invite your thoughtful consideration. May I repeat once again that I have supreme confidence in the physician's wife wherever she is. She is a woman bountifully endowed with common sense. She is, by virtue of her position, usually a leader in her community, in such national agencies as the General Federation of Women's Clubs, The Congress of Parents and Teachers, and the Auxiliary to the American Legion. Because of this experience her judgment can be relied upon. Once she becomes familiar with the policies and plans of our Auxiliary she will be quick to lead her husband to a sympathetic understanding and together they will take their rightful place as leaders in all health activities, giving the right interpretation in the interest of scientific medicine.

To you, the members of my State Board, for your wise counsel and for the hours and into days you have given in planning and directing the departments of work;

To you, my county presidents, and your boards, for your loyal devotion and the promotion of the prescribed policies; and to you, all members of the Auxiliary, who have given so generously of your time and talents, and for your moral and active support, I want you to know I as your president, have a very deep appreciation for this service. As individuals you may say with me in the words of Edward Everett Hale,

"I am only one,
But still I am one,
I cannot do everything,
But still I can do something,
And because I cannot do everything,
I will not refuse to do the something
That I can do."

To you, the incoming administration, we of the past wish to leave with you the sentiment that has been our guiding star, and one which we have come to think of as Our Creed.

That I might so interpret the thought that it will be a personal message—a personal appeal is my supreme wish at this moment—and with this I close the chapter of 1933 and 1934: "One great bond we have in common, one ideal that we hold highest and best among our earthly ones—the bond, that of participating in the practice of the noblest of profession; the ideal, that of using our service wisely in the interest of that profession and mankind, proving ourselves true helpmates, both individually and collectively. Collectively we are a strong force that may be of use in a quiet way, to the medical profession.

We, who know the unselfishness of these men of ours, can do much to enlighten a frequently misinformed public about the true character of medical work and its plans for public health and welfare. We can, in a non-aggressive way, offset much of the wicked propaganda that is constantly kept before an ignorant and deluded populace.

"With this in mind, let us use our time wisely, make our plans carefully and thank God for the opportunity to be of service to this profession of which we are an honored part."

PHYSICAL THERAPY SESSION TO BE HELD IN PHILADELPHIA

The thirteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held in Philadelphia at the Bellevue Stratford, September 10, 11, 12, 13, 1934.

This year's session will be especially noteworthy be-

cause of the excellent program which has been arranged. Outstanding clinicians and teachers will present the results of the newer researches in the field emphasizing short wave therapy, hyperpyrexia, light therapy, remedial exercise, massage and other interesting subjects.

On Wednesday evening, September 12th, a joint session will be held with the Philedelphia County Medical Society.

Special features will be the scientific and technical exhibits and the small group conferences. The latter have been arranged for Tuesday morning. Every specialty of medicine and surgery will be represented. The technical application of physical measures will be demonstrated and the fundamentals emphasized. The general sessions will be taken up with symposia on cancer, arthritis, poliomyelitis, industrial surgery, etc.

Friday, September 14, has been set aside for hospital teaching clinics which will be held in the leading institutions of Philadelphia.

You should plan now to attend this very important medical gathering. Physicians and their technicians, properly vouched for, are eligible to attend.

Send for preliminary program. Address American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

STATE HEALTH DEPARTMENT HAS AVAILABLE CONVALESCENT POLIOMYELITIS SERUM

The following information as furnished us by the Director of Public Health, Springfield, Illinois.

With the possibility of a considerable wave of poliomyelitis in Illinois during the next three months I should like to remind the medical profession of the State that convalescent serum may be obtained free of cost from the State Department of Public Health at Springfield. The serum may be obtained at any time, night or day, in response to requests by wire or otherwise. It will facilitate matters if requests for convalescent serum are directed to the Division of Laboratories of the State Department of Public Health.

The history of poliomyelitis in Illinois suggests that prevalence will be greater this season than in any previous year since 1931. This is indicated by the past epidemic behavior of the disease. Weather conditions likewise appear to favor greater prevalence. In California, Arizona and Texas, moreover, case reports have increased to a marked degree during recent weeks. It is not unusual for epidemic waves to begin in the West and travel eastward as the season advances.

Convalescent serum treatment appears to be decidedly advantageous especially when used during the early stages of the disease. The experience in Illinois with 89 serum-treated patients and 100 non-serum treated patients is very striking. Diagnosis of the 89 treated patients was definitely established beyond any doubt.

Complete recovery took place in 82 per cent of the serum treated and in only 22 per cent of the non-serum treated patients. Severe paralysis occurred in none of the serum treated patients but did occur in 22 per cent of the untreated. Moderately severe paralysis occurred in 4.5 per cent of the treated and in 41.0 per cent of the untreated patients. Mild paralysis was observed in 10 per cent of both groups. There was 3.5 per cent mortality in the treated and 5 per cent in the untreated group.

An ample supply of poliomyelitis convalescent serum to meet reasonable demands is on hand for immediate needs. Physicians are requested not to ask for serum for anticipated needs, however.

Convalescent serum may be obtained at cost of production from the convalescent serum center, Michael Reese Hospital, Chicago.

Specially qualified medical officers are available from the State Department of Public Health for consultation in poliomyelitis.

Early diagnosis and treatment with convalescent serum prior to the onset of paralysis may be emphasized as of outstanding importance. A special bulletin that describes the symptoms of early poliomyelitis and the technique of treatment is available from the Department.

AMEBIASIS: LABORATORY DIAGNOSIS

J. J. Moore, M. D., F. A. C. P.
CHICAGO

The laboratory diagnosis of amebiasis plays a most important role in the determination of its treatment and in the control of its dissemination. No matter how the disease is spread, the cysts must first come from the intestinal tract of an infected individual.

The procedure usually followed for diagnosis is to have the individual to be examined report to the laboratory, where a stool is passed and examined immediately; first, in normal salt solution for motile organisms and cysts; second, in an iodine preparation for cysts. Not less than two smears are examined in each solution. A culture is then made upon liver extract agar to which have been added dilute blood serum and rice powder. This culture is examined after twenty-four and forty-eight hours. Such detailed technique permits the parasitologist to examine a maximum of not more than ten individuals daily.

The Chicago Health Department requires that a food-handler, found to be a carrier or active case and given treatment for the condition, must have four negative examinations one week apart followed by another after a period of one month, before he may be permitted to return to his employment. In addition, he must then be examined once a month for the next four months as an extra precaution.

Dr. G. W. McCoy, Medical Director, U. S. Public Health Service, says: "There is no need for isolation of the clinical cases of amebic dysentery beyond such isolation as may be necessary for the benefit of the patient. There is no need for the isolation of carriers." "Control of the spread of infection by the detection of carriers and their exclusion from food-handling groups does not appeal to be practicable on a large scale.

It has been found by Spector and Buky that the cysts of Entameba histolytica, when dried on the fingers, were killed in from five to ten minutes.

Not everything that moves in a stool is Entameba histolytica. Four non-pathogenic amebae: Entameba coli, Endolimax mana, Iodameba buetschlii and Dienta-

meba fragilis with their cysts, and all the various flagellates, must be differentiated. (Experience in parasitology is a necessity for this identification.)

None of the leading parasitologists has isolated bacteria or amebae from the blood stream, nor does any recommend vaccines as a therapeutic agent.

THE OBJECTS OF THE MEDICAL COMMISSION DEPARTMENT OF AMERICAN LEGION STATE OF ILLINOIS ARE:

1. To effect close contact between the American Legion and the Medical Profession through the Veterans' Service Committee of the Illinois State Medical Society.

2. To study carefully all problems of mutual interest to the veteran and organized medicine.

3. To assist Service Officers from a medical standpoint, in proving Service connected disabilities, in order that the cases of deserving veterans may be made compensable.

4. To guide the health activities and welfare work of the Legion in such a way as to prevent misunderstanding between the Legion and the County Medical Societies in their respective communities.

5. (a) That we are in accord with the present law and regulations that provide hospital treatment and outpatient treatment for all Service connected disability cases of all war veterans with honorable discharge; and that we further recommend that the same treatment be available for all war veterans unable to pay.

(b) That we recommend that all acute critically ill cases of all war veterans with honorable discharge be treated in the community in which they arise by an approved physician of the veteran's choice, in home or local hospital, and that a reasonable fee be paid by the Government to the physician in charge and hospital, upon the presentation of the bill, O. K.'d by the President of the County Medical Society in which the emergency occurred.

(c) That we recommend that all war time veterans with honorable discharge and unable to pay for treatment who are suffering with chronic constitutional diseases and injuries be afforded Government hospitalization upon the request of the veteran or his conservator.

EFFECTS OF THYMUS EXTRACT INJECTIONS ON GROWTH AND DEVELOPMENT

The premier public presentation by the Philadelphia Institute for Medical Research showing the effects of thymus extract injections on animal heredity was made under the auspices of the Philadelphia County Medical Society at its stated scientific meeting on Monday evening, April 30, 1934.

In order to ascertain the function of the thymus gland, white rats of a standard strain (Wistar) have been injected with an extract of the thymus gland prepared by Dr. Adolph M. Hanson of Faribault, Minnesota. Injections have been continued through succeeding generations and the effects of injection have been noted on both the original rats and their offspring to the fifth generation.

The third and subsequent generations of thymus injected animals, as judged from more than two hundred survivors, showed a surprising rapidity of growth and development. In the third generation the average birth weight of the offspring was 15 per cent and in the fifth generation 20 per cent heavier than those born of animals not injected with thymus extract, which will hereafter be referred to as controls. The ears opened on the first and second day in the third generation, on the first day in the fourth and fifth generation, as compared with 2½ to 4 days in the controls. The teeth erupted in less than 48 hours in the third generation, in less than 24 hours in the fourth and fifth generations as compared with nine to ten days in the controls. The eyes opened on the fourth to the sixth day in the third and fourth generations and on the second to the third day in the fifth generation, as compared with fourteen to seventeen days in the controls. The animals were covered with fur by the fourth to the sixth day in the third generation, the third to the fourth day in the fourth generation, and by the second to third day in the fifth generation, as compared with fourteen to seventeen days in the controls.

The growth curves of the third, fourth and fifth generations of thymus injected rats compared with controls revealed marked acceleration with the maximum difference about the sixteenth day and approached each other after the sixtieth day. For considerable periods of time, test animals have been almost double the weight of the controls.

The time of the onset of adolescence and maturity have also been advanced in a striking manner. Thus in the fifth generation adolescence has been attained in the male from the fourth to the eighteenth day as compared with the normal, forty to ninety days, and in the female from the twentieth to the twenty-fifth day instead of the seventieth to the ninetieth day. In addition to precocious adolescence, fertility has also been increased.

The treated animals appear unusually docile and contented, are normally active and alert. Aside from precocious growth and development, they appear normal in every respect.

This investigation has been carried on through a sufficient length of time to establish the increased acceleration of growth and development beyond question of doubt. The effects of injections when treatments are continued through four or five generations are much more marked in the offspring of the second, third and fourth generations than those resulting from continuous injection for the same length of time confined to parents alone. It is evident, therefore, that thymus extract has accelerated the rate of growth and development, hastened the onset of adolescence and increased fertility. It is of extraordinary interest that the effects of thymus extract become progressively more pronounced as treatment is continued through each succeeding generation, a principle which may be found to have broad application in the field of biology.

"For years the two sexes have raced for supremacy. Now they have settled down to neck and neck."

Original Articles

THE DOCTOR AND HIS COMMUNITY

PHILIP H. KREUSCHER, M. D.
President, Illinois State Medical Society
CHICAGO

More than fifty years ago a young graduate of the University of Pennsylvania came to a small village in Kansas to practice medicine. He came unannounced and alone. There were no paved roads, not a paved street in the town. There was no hospital, no research laboratory. Without present-day facilities but with a thorough knowledge of the fundamentals of clinical medicine and surgery and with a sincere desire to serve, he began his ministrations to the sick and needy of the community. Time went on. There were difficulties and many unusual demands, but to him no hour was too late, no night too dark and no roads impassable. Love of service and devotion to duty made it possible for this pioneer to carry on. He prospered. Prosperity, however, as I soon learned, had not come without sacrifices and not without hardships.

I had just finished my internship and had become well accustomed to the conveniences of a large city hospital when I happened into the community of this country physician. It was with considerable reluctance that late one stormy night I accepted his invitation to accompany him on one of his night trips. A call had come for the village doctor. A child desperately ill many miles across the river needed his help and needed it at once. We started. Soon I realized that this was to be a death-defying journey. A Kansas storm was raging and our vehicle bumped up and down over terrible roads. We forded swollen streams and plowed through mud up to the hubs of the wheels. The storm raged on. I was having my first experience with a country doctor. Even then, as we traveled along, I wondered why men studied medicine and whether it was all worth while. Finally, we arrived at the farm house, the home of our patient. The child was desperately ill. Frantic parents had awaited our arrival for hours. Calmly but quickly my doctor friend sized up the situation. In a few minutes an intubation set and several instruments were prepared. By the light of a kerosene lamp and with a kitchen as an operating room, the doctor carefully, deftly and with skill that aroused my profound admiration, performed his duty. The life of the child was saved.

It was dawn when we began our journey homeward. The way seemed less perilous in daylight and soon we were discussing various problems of the country doctor—the hazards of a country practice, fees for service, competition in the practice of medicine as it existed at that time and many other subjects. I was amazed at the philosophy of this country physician. Nothing seemed too great for him. He had gone through experiences of this kind before and little did he seem to mind them. He had that day been internist, fracture specialist, eye specialist, pediatrician, obstetrician and surgeon and considered it just another day with the usual duties incident to a large country practice. I never think back upon that night without a spirit of gratitude for this experience, for the realization it brought home to me of the unselfish devotion to duty, yes, the unsung heroism of the pioneer doctor.

Many years later it was my sorrow to attend the last rites of this physician. The people of the village and the whole countryside came to mourn. This man had for many years been their doctor and best friend. He had not only cured their ills but taken upon himself the burden of their troubles. He was the chief man among them, the one most respected and most beloved, and at all times an integral part of their lives. Impartial counselor, self-sacrificing healer, unselfish friend—all this he had been to them and thus they honored him. They were inconsolable.

This true narrative of the devotion and self-sacrifice of a man of medicine and the appreciative response of his community is not an unfamiliar one. My friend lived in the era which has just passed, but I bring his story to you in the hope that some of his spirit, the spirit of true community interest and sincere devotion, may be implanted in the hearts of our present-day physicians. It is with such memories clearly before me and with the hope that something of his philosophy may enter into the solution of the problems that confront his modern successor that I have chosen as my topic the old relationship he understood so well, that of a doctor to his community.

The Relationship to the Community. Since time immemorial, long before codes were the order of the day, the physician practiced under

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the Hippocratic Code. Contained in this oath are all the elements of our creed of today. In it is outlined in unmistakable terms our present-day conception of the relationship of the doctor to his patient. The day a physician comes into a community he does so with the avowed intention of ministering to the best of his ability to the physical ills of his people. This is the basis for the unwritten contract into which he enters with his community. This is true whether he locates in a remote rural district or in a large metropolitan center. This is likewise true whether he starts as a general practitioner or as a specialist. As a highly trained and educated man his standing among his people is measured by his ability to serve in his professional capacity. All else is secondary. His prowess as a billiard wizard or a golf expert does not enter into the contract.

What Does the Doctor Owe His Community? If a man is to be pre-eminently successful, the people at once must become cognizant of his ability and willingness to serve. Combined with these two qualities must be that of adaptability. Medicine being a part of the social order in a community, the physician must invariably adapt himself to the altering demands of his time. Through individual effort medicine has been developed and administered for many centuries. In the last twenty-five years the rapid progress of science and invention and the outstanding influence of the World War have greatly changed the order of things. These influences have changed us from our splendid isolation and a country of small towns to a nation of urban dwellers. The struggle of nations and individuals for existence has brought with it a great change in ideals. Our profession, living under a code promulgated in 430 B. C. and rewritten in 1847, finds itself face to face with the more or less justifiable criticism of not being in a position to meet today's problems. The ability of the doctor to adjust himself to new demands is his first duty to his community.

Unless we as doctors meet reasonable demands of our people, we can only expect that new adjustments will be forced upon us from without. Most of the ills and problems which beset the profession today and about which we talk so much are those of our own making. Gone are the days when a silk hat and a swallow-tailed coat impressed the public. The day is past when a casual examination of the tongue and a prescription for sulphur and molasses will satisfy the patient. Only too often some of our numbers still adhere to the methods of our fathers and grandfathers in medicine. Patients have learned that a thorough examination by modern methods precedes the diagnosis and treatment. Too often one hears patients say that they have never been really examined even though they have been seen by a number of physicians. If a doctor fails to give his patient reasonable attention and proper examination, if he fails by such examination and clinical research to determine "what is the matter with the patient," then it is no wonder that the confidence he should enjoy disappears. The press, the radio and our own efforts in educating the public in matters of health have made it entirely necessary that the doctors of the community be prepared to give the patients that which they have a right to expect. Too often even today a prescription for aspirin or the application of a mustard plaster is substituted for a proper examination.

When a doctor has betrayed the trust of his community, then and only then do his erstwhile patients find their way into the dispensaries or clinics and too often into the hands of the irregular practitioner. We legislate against the "cults" and against those who do not practice medicine along the line as we understand the practice, but we forget that it is because of our neglect of duty that these various practitioners exist. The "cultist" is the illegitimate son of the medical profession. By our ignorance and procrastination we have given him birth and by our persistent indifference we are giving him a livelihood. The doctor invariably gets the first chance, and it is only after we fail that our patients leave us.

The doctor must be prepared to meet the ever-changing methods of diagnosis and treatment. The advantages offered in the various medical societies and clinical demonstrations given in medical centers are the sources of information which every man should seek. No other medium is so helpful as is the free and open discussion of medical matters in our county, district and state societies. When we fail to take advantage of this type of instruction, we fail at once to meet our obligation. Would you wish to employ an attorney to defend you in an important trial who for many years had not kept up with the latest court decisions or with the latest methods

of procedure? You would not. Then we should not expect a patient to be satisfied with the services of a physician who has not kept pace with modern methods. Osler spoke so truly when he said: "A physician who does not use books or journals, who does not need a library, soon sinks to the level of the cross-roads prescribed not alone in practice but in those mercenary feelings and habits which characterize a trade."

If a man is true to the trust the community has placed in him, he must be imbued with a spirit of cooperative fellowship with his people not only in affairs medical but in their civic and social affairs as well. It is only in this way that he can become an integral part of his community.

There are other relationships, however, which the physician must cultivate and principally among them is the spirit of fellowship with the other doctors in the community. There still are those who see no value in medical organization nor do they see the benefits derived from such fellowship. There has always been and there still lives the type of man who, as a "lone wolf," plays a lone hand. He does not stop to think that a "lone wolf" never exists long. The man who fails thus to fraternize is usually not honest with himself nor with his patients. One who refuses to consult with his ethical neighbor is either a snob or a coward. A very influential man in my community once asked, "Do you know why Dr. X is such a good doctor?" I was interested. He said, "Because he has so many good doctor friends with whom he consults." It is not always best that doctors should agree. The value of consultation is always enhanced by a frank interchange of views. Too often when the doctors agree the patients die.

We are organized for the purpose of promoting the art and science of medicine, to organize the medical profession and safeguard its interests, to protect the health of the community and to crystallize public opinion in regard to medical problems. Some of us have been accused of being medical politicians. If I am a politician for my efforts in attempting to carry on these vital principles, then I should wish to remain one. The drone who stands idly by and partakes of the "honey" of the workers and cries "Why doesn't the medical society do something?" is not only an obstructionist but a menace to medical organization. It is not always easy to give up time and energy to promote the welfare of an organization for the common good. In our scheme of things with few paid officers it becomes necessary that some of our numbers at least give all possible time and put forth every effort in the interest of medicine.

Whalen in a recent editorial wrote as follows:

"To abstain from medical activities under present menacing conditions is a wasteful squandering of that valuable asset of good teamwork at the very time when collaboration is absolutely vital. One does not change horses in the middle of the stream. When out in mid-ocean in a storm you do not see anybody shoving off in a rowboat by himself to save passenger money. Present conditions make mass action imperative and mass assaults can move mountains. Few, if any, can deny the need for maintenance by the medical profession of the strongest possible organization—strong in numbers, militant in spirit and untiring in its concerted efforts to protect the interests of the medical profession and in so doing the interests of the community."

There are those in and out of our profession who would have us feel that we as physicians have failed to keep faith with our community in that we have not solved medical economic problems. Two American presidents and as many Congresses with all the brains and machinery available to them have wrestled with our national economic problems without bringing to an end the greatest calamity the world has ever seen. Now the federal government is attemting by various regulations to bring emergency relief to the indigent sick. The medical men of this state and the entire land are responding admirably. Once more we have shown that medicine, as a part of the social structure of the community, can adapt itself in times of emergency to any reasonable proposition. There are those who think that by accepting the federal challenge we have stepped inside the threshold of state medicine. I find it difficult to understand the mental attitude of those who cry "Peace! Peace!" when there is no peace, and yet let us not be too hasty to call "Wolf! Wolf!" when there is no wolf. Those who are pessimistic should gain some solace from a significant statement in one of the arid paragraphs of Regulation Number 7, in which the federal government insists that whenever possible the traditional relationship of physician to patient must be maintained. I am convinced that by doing our part the medical profession has strengthened its position with its people and with its government.

The angles of the medical economic problem are so far-reaching and so varied that no one community or state can cope with more than its

individual or local problems. All manners of solutions have been offered. Insurance schemes by the score, plans for low-cost clinics, plans for state and federal regulations have been promulgated with monotonous regularity in the medical journals and in the lay press. I am reminded of a homely rime I learned as a boy:

> All the cats consulted,
> And what was it about?
> How to catch a little mouse
> Running in and out.

There has been too much palaver about medical economics and too little real action. While all the various agencies and groups are putting forth schemes and arriving nowhere, "our patient" is showing no signs of recovery. There have been too many diagnostic methods, too much exhaustive research, without arriving at a true diagnosis. The time for diagnosis and treatment is at hand. This work is the prerogative of medical men who, by unselfish interest, aptitude, training and courage, are fitted to cope with these problems. This is a job for the thinking men of the state and national medical organization, who have the welfare of all the doctors and all the patients at heart. Medical problems have never been solved by non-medical minds. This is the day when courageous men of medicine under unvacillating leadership must go forth and do battle. The utter failure of that self-appointed group of individuals with high-cost methods and low-cost ideals is too fresh in our memories to warrant further comment.

What Does the Community Expect of the Doctor? The public looks to us for medical care and leadership in medicine. If this is not forthcoming, then they will appeal to the state and federal agencies. The medical profession has never failed. In this economic exigency we will not falter. Present-day civilization is made possible by medical knowledge and the future of civilization depends upon the influence of medicine. Organized medicine still represents the medical profession, the unwarranted statements of some of our critics notwithstanding. Never before has there been more need for wise leadership. This leadership must begin with the physician in his own community. He is the man who can mold the opinion of his people, realizing full well that public opinion and sentiment will ultimately have a voice in the solution of our problems.

The people look to us to get them well and keep them well. Often they expect the doctor to do the impossible and frequently we have permitted ourselves to be forced into pitfalls from which it was difficult to recover. Ours is a peculiar people. We go to extremes in all things. Unreasonable public demand created specialization in medicine to the nth degree. Now that same public opinion cries for despecialization. The safe and sane path seems difficult to find. *Individualism must be preserved in medicine,* but that individualism must submerge itself for the common good (Donald Guthrie). Public opinion has created in our government a trend toward socialization for several decades, but it is for us to assist in the formation of public opinion so that the people may know wherein lie their best interests.

Recently the editor of the Journal of the American Medical Association wrote:

"Those who know and understand the nature of medical care... are inclined to believe that the last stand of the citizen in maintaining his status as an individual human being is going to be in times of disease. A man at work in a gang along the side of the road, a soldier who is a fragment of humanity in a regiment of cannon fodder, a robot in one of our great industrial plants who spends minute after minute, day after day, performing the same mechanical functions, has but little opportuniy to feel that he is an individual human being. But when a splinter of steel flies into his eye, when his shoulder begins to ache with the stress of the pick and shovel . . . then he seems to prefer a physician who will look at his eye not as an eye belonging to the state but as an eye belonging to John Smith. He prefers a physicial who will treat . . . without any relationship to the state's responsibility. . . He finds himself in his relationship to the state exactly as he finds himself in his relationship to an employer who wants from his labor all the work he can get, but who wants to pay to his labor the least that can be paid. Those who have watched the tender care of the state for the public in times of stress realize that the sympathy, the understanding and the humanity of the state employees toward the unfortunate is not always manifested with what might be called humanism. Those who have read in "Little Man, What Now?" the experience of the German laborer who was trying to get from his government something in the way of benefits under the insurance act in Germany will find a startling example of the way in which bureaucratic employes under most circumstances concern themselves with the problem of the individual sick man."

The community also expects of the doctor an

honest leadership along economic lines. People expect that the doctor will adapt himself to the economic status of his patients. The moral precepts of the ethical code can be maintained. They are not incompatible with the recognition of and urgent demand for the more satisfying economic status which can only be brought about by the business of medicine. (Edgerton Crispin.) Medicine must create within its own ranks a system which the presentday type of practice and opinion does not possess. There is a business in medicine which the profession has not recognized. (Rexwald Brown.)

I remember well as a boy when our doctor accepted commodities of all kinds for his services. Doctors are notoriously poor business men, but is it not possible for us by proper adjustment, as is being done in all other lines of business, to enter into a satisfactory and equitable relationship with our patients, especially during this era of emergency? The great majority of our patients do not wish to be pauperized. The patient who paid his doctor bills but who is now unable to meet the fees will in many instances again become a paying patient.

What Does the Community Owe the Doctor?

Galen expressed a great truth when he stated "He cures most successfully in whom the people have the greatest confidence." When we have served faithfully and have not betrayed its confidence, then the community truly owes the physician a real debt of gratitude. We have every reason to expect cooperation and allegiance from those we have served. I have long realized that appreciation and confidence come to us from our people in direct ratio with the number of units of energy we put forth in our service. Little does the community comprehend of our efforts, our sacrifices. They do not realize that the doctors of the country, according to a recent survey, do a million dollars worth of charity a day. Such a gift to the public entails sacrifices from every one. The returns from this survey indicate that the average American doctor contributes about 25% of his time to medical service for which under existing conditions he can expect no compensation. Combine this with the additional one-quarter of his time for which he charges but cannot collect and it will be seen that about half of the physician's working hours are given over to free work.

A greater measure of appreciation would be ours if every one understood the spirit of that splendid eulogy of the physician by Robert Louis Stevenson:

"There are men and classes of men who stand above the common herd; the soldier, the sailor and the shepherd not infrequently; the artist rarely, rarer still the clergyman; the physician almost as a rule.

"He is the flower of our civilization; and when that stage of man is done with and only to be remembered, to be marveled at in history, he will be thought to have shared as little as any in the defects of the period and most notably exhibited the virtues of the race.

"Generosity he has such as is possible to those who practice an art, never those who drive a trade; discretion, tested by one hundred secrets; tact, tried in a thousand embarrassments; and what is of more importance herculean cheerfulness and courage. So it is that he brings air and cheer into the sick room and often enough—healing."

Neglect by the patient of genuine appreciation of these sentiments and failure on our part always to recognize our sacred obligations have widened the breach between the doctor and his community. I am fully convinced that the solution to many of our problems lies in the restoration of that absolute confidence of the patient in his physician. Restore fully in its broadest sense the devotion and traditional relationship of the patient to his physician, and I will show you a new medical profession with light hearts and uplifted heads, oblivious of all obstacles, carrying on with the spirit of true community interest symbolized in the life of my old friend, the Kansas doctor.

As I look backward upon the long history of the arts and sciences I seem to see a great procession of famous and heroic figures. One of them stands out not only as a witness of his own authentic achievements but also as a symbol of the traditions, ideals and aims of the profession which he represents; a man inspired by true devotion, lavish of love and sacrifice for the welfare of his community; one supreme in achievement whose deeds will never be forgotten—the Doctor.

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AMEBIASIS—DIAGNOSIS AND TREATMENT

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The presence of an apparent widespread infestation of the population of the United States with entameba histolytica, which certainly was not suspected, has been rather forcibly brought to the attention of the medical profession. It has been estimated that approximately five per cent. of the population are carriers. This infestation has been called amebic dysentery, which does not describe the true situation. The majority of cases do not have dysentery. Colonel Craig, whose experience in this particular field is wide, advances the term "amebiasis." Amebiasis then includes the various manifestations of infestation with entameba histolytica.

The importance of an accurate diagnosis assumes large proportions when surgery is contemplated, because if a patient is subjected to surgery, especially an appendectomy, the mortality rate is markedly increased. The reason for the danger is due to the fact that the amebae invade the submucosa, muscularis and even the lymphatics, damaging these areas by the cytolytic substance produced by the amebæ. When these areas are invaded by the normal inhabitants of the bowel, weak spots sometimes develop which rupture and cause peritonitis. If the operator should be unfortunate enough to traumatize such an area during an appendectomy, peritonitis may easily follow.

The diversity of symptoms makes their classification difficult. To illustrate this particular point, the different types of cases of amebiasis are divided into four general groups:

1. No symptoms—so-called carriers.
2. Mild cases—vague gastro-intestinal complaints.
3. Acute onset—frequent stools, prostration of patient.
4. Advanced and chronic.

Under ordinary circumstances the first group will not be recognized unless an examination of feces reveals the presence of cysts. It is quite uncommon in our experience to find motile forms in this type of case. These patients may become a menace to the population if they are in a position to pollute either water or food. Further, such a patient is in potential danger of an hepatic abscess.

The second group are the patients that may complain of alternating periods of frequent stools and constipation. The stools do not commonly contain blood or pus in either phase. Close questioning often reveals the presence of a low back pain, anorexia, feeling of lassitude, and vague abdominal pain which does not readily localize. The physician in his search for an explanation of the symptoms will not be able to make a positive diagnosis until the cysts or amebae are found in the feces.

It is surprising how many patients in this group have demonstrable ulcers in the rectum and sigmoid. Proctoscopic examination of this group is quite important. With the proctoscope in place and an ulcer under observation it is possible in many instances to obtain motile amebae.

The third group are those that have an acute onset characterized by frequent stools which usually contain blood, pus and excess mucus. The fact that the patient has diarrhea is sufficient to call to the physician's attention the possibility of a dysentery of some variety. It then remains for him to determine the etiology. Bacilliary and amebic infections may occur simultaneously. The entire colon may be tender to palpation.

Patients in the fourth group are often diagnosed erroneously as ulcerative colitis of a nonspecific type. These patients have many relapses characterized by frequent stools. Blood, pus, mucus, and shreds of mucous membrane are found in the stools which are not formed. Microscopic examination of the shreds of mucous membrane may reveal amebae and, histologically, there is no invasion of tissue by round cells and polymorphonuclear cells. The colon of these patients at autopsy is markedly thickened, the mucous membrane is almost entirely denuded and some parts of the colon show areas which are very thin. The condition of the colon explains in a large measure the reason for the frequency and type of stools. The colon can be palpated throughout its entire length. Patients in this group become invalids and remain so unless they are carefully and energetically treated.

The conditions to be considered and ruled out in abdominal pains are numerous when a diagnosis of amebiasis is considered. Appendicitis is probably the most common surgical problem

confused with amebiasis. A careful consideration of the course of events, physical findings and observation will aid in the diagnosis. Other causes of acute abdominal pain such as mesenteric thrombosis, malignancy of the bowel, impactions, peptic ulcer, intestinal obstruction, pancreatitis, kidney stone, salpingitis, and biliary tract disease must be ruled out.

The diarrheas, such as bacillary dysentery, tuberculosis of the bowel, typhoid and paratyphoid demand in addition careful laboratory examination.

The diagnosis of amebiasis is dependent upon the following factors: stool examination, proctoscopic examination, careful thorough physical examination, and close scrutiny of the history.

The stool examination should consist of two parts: first, the physician should note the character of the stool for consistency, color, amount and presence of gross blood, pus or mucus. The remainder—that is, direct examination for motile forms and cysts should be done by a competent technician. It is uncommon to find motile forms in a formed stool. The diarrhea stools should be used for examination for motile forms. If the physician is qualified there is no reason why he should not do direct examinations. Select a small portion of blood-stained mucus, mount in normal saline under optimum conditions and examine diligently under the microscope. It is necessary to be quite thorough in this examination and spend plenty of time. In the selection of a specimen for cysts it is wise to take the sample from the portion which has been in intimate contact with the bowel wall. To do this, select the outside of the stool for samples. This material is mixed with compound solution of iodine which makes the structure of the cysts easy to identify. It is, of course, necessary to be able to differentiate between the cysts of Entameba coli, Entameba histolytica, Endolimax nana, and Entameba buetschlii. Most authorities seem to feel that a culture is of considerable value. If the facilities to make a stained smear are available then this should be used to check the other methods. The Journal A. M. A., 102, 371-372, 1934, gives a good discussion of the laboratory technique.

The value of a proctoscopic examination has not been sufficiently emphasized in the past. Many patients that are in the first and second group have demonstrable ulcers in the rectum and sigmoid. The ulcers are characteristically punched out with undermined edges. They vary in size from a millimeter to 2 or 3 centimeters. The bowel wall appears edematous and more red than normal. Usually the mucus is profuse. When the proctoscope is introduced the mucosa is likely to bleed easily. If the operator removes some of the blood and mucus from an ulcer with a capillary pipette and examines it immediately on a warm slide, motile amebae may be seen in a large percentage of cases. It has been the policy at the Municipal Contagious Disease Hospital to repeat the proctoscopic examination following each course of treatment to observe the changes in the appearance of the bowel wall. The wall has resumed a normal pink color, the glassy edematous appearance has disappeared and in the majority of cases the ulcers have healed.

The treatment for amebiasis up to and including the present time (March 1, 1934) reminds one of the suggested remedies for pertussis. Many drugs have been advanced but prove inadequate upon fair trial. Emetin and its salts have been looked upon as the standard for some time. Due to the toxicity of emetin, the drug should be used with considerable caution. Emetin may have a harmful effect upon the myocardium, causing myocarditis, and also upon nerve tissues, causing neuritis. According to Craig and others who have had wide experience in the treatment of amebiasis, emetin should be reserved for cases having liver complications or only used to control the acute dysentery for the first three days.

Many arsenicals have been proposed and used. Stovarsol, carbarsone, acetarsone, and treparsol are the common arsenicals. Our experience with arsenicals has been limited to carbarsone. This drug was selected because of its low toxicity.

Another group of drugs is the halogenated oxyquinoline compounds. Vioform, yatren, chiniofon, and anayodin are representatives of this group. These drugs have a low toxicity and because of that are relatively safe. We have used vioform and anayodin extensively.

Enemas of quinine and various other alkaloids have been used by others. Enemas should be used with caution in acute cases because of the danger of causing perforation of the bowel.

The preparation of a case for proctoscopic examination is quite important and does not apply to an acute case. Two enemas are given to

cleanse the bowel—preferably on admission and about two hours before examination. The patient should be instructed to empty the bowel thoroughly. It is not necessary to have a special rectal table to do a proctoscopic examination because this can be done quite satisfactorily in the knee-chest position on any table.

The diet for those acutely ill should be bland and soft. As soon as the frequent stools subside, then a full diet can be allowed. In fact, the patients seem to do better on a full diet.

The dosages of the drugs as used at the Municipal Contagious Disease Hospital are as follows:

Carbarsone: ¼ gram t.i.d. for 10 days, which may be increased in some cases to ½ gram t.i.d. without danger. Check urine twice weekly for albumin, casts and red cells.

Vioform: 1 gram t.i.d. for 10 days.

Anayodin: 100 pills total dose. 4 pills t.i.d. for adults over an 8 day period. In some cases the number of stools will be increased, but this subsides in 3 or 4 days. Children can be given the full number of pills, but should require a longer time interval.

During the administration of these drugs it is advisable to examine the urine twice weekly. A rest period of five days following a course of treatment should be allowed before stool examinations are made. The criterion for release by the Chicago Board of Health is four negative stools at weekly intervals followed by monthly examinations for four months for all food handlers.

During the entire period of observation, the patient should be closely watched for involvement of the liver.

From Municipal Contagious Disease Hospital, Board of Health, Chicago.

Read before the Englewood-Stockyards Branch of the Chicago Medical Society, February 8, 1934.

THE TREATMENT OF HYPOTENSION IN ARTERIOSCLEROSIS

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Our interest, as a whole, is centered upon the hypertension of arteriosclerosis. The fundamental fact that a narrowed arteriosclerotic artery may be unable to carry sufficient nutrition to a part, is quite generally overlooked. This is compensated for by an increase in blood pressure. Many instances of alleged local vascular spasm may be accounted for by a diminished flow of blood through a narrowed artery, resulting in a localized anemia. Thus, a narrowed artery may carry sufficient blood for nutrition but an inadequate amount for function. Function may be disturbed in widely varied degrees. Temporary aphasias or paralyses in cerebral arteriosclerosis, angina in coronary sclerosis and intermittent claudication in sclerosis of the peripheral arteries, are of this type. The rate of flow through such arteries may be increased by increased blood pressure, increased heart rate or dilatation of the vascular bed distal to the partial occlusion.

It has been noted frequently, among the large number of arteriosclerotic cases observed in the Cardiac Follow-up Clinic at the Cook County Hospital, that even moderate lowering of the arterial tension often brings out evidence of these localized anemias. Because of these facts, a small group of cases, all intelligent private patients, has been given ephedrine sulphate for the purpose of increasing the blood pressure. As shown by Miller,[1] Roundtree and Brown[2], Hess,[3] Middleton and Chen,[4] ephedrine sulphate raises blood pressure when administered by mouth and this increase may be maintained for days by continued administration of the drug.

The following group shows the effect of such therapy upon patients suffering with vertigo:

Mr. B., a retired executive seventy years of age, gave a history of two attacks of cerebellar vertigo about one year ago and since that time he has had, almost daily, moderate attacks. Physical examination revealed marked peripheral arteriosclerosis, but was otherwise negative. The blood pressure was 130/100 m.m. Hg. He was given ephedrine sulphate, grain ⅜ and Amytal grain ½, twice daily. Within a week all vertigo had disappeared and the blood pressure had risen to 150/100 m.m. Hg. Recent discontinuance of the therapy resulted in a return of the vertigo and also two short attacks of diplopia. Upon resuming the use of the ephedrine all the symptoms promptly disappeared.

Dr. M., a physician sixty-five years of age, complained of vertigo and weakness. Physical examination was essentially negative. His blood pressure was 120/80 m.m. Hg. Ephedrine Sulphate grain ⅜ twice daily, resulted in complete disappearance of the vertigo and weakness. The blood pressure rose to 140/80 m.m. Hg.

Mr. S., a broker sixty years of age, was first seen two years ago when he was complaining of mild precordial pain after exercise. These attacks disappeared entirely with the taking of a theobromine compound. June 1, upon arising, he was seized with an attack of vertigo so severe that he was unable to leave his bed. When seen by another physician he was found to have

a pulse rate of forty-eight. Later an electrocardiogram showed a prolonged P.R. interval, 0.24 sec. He continued to have vertigo in the early morning when his pulse was slower than any other time of the day. His blood pressure was 140/105 m.m. Hg. Immediate improvement followed the administration of ephedrine sulphate, grain ⅜ and Amytal grain ½, once daily. The pulse rate gradually increased to 72 to 80 but without increase in the blood pressure. In this case the increased heart rate alone apparently relieved a relative cerebral anemia.

Cases with more advanced cerebral lesions:

Mr. S. F. P., a buyer now sixty-eight years of age, has been under observation the past five years because of arteriosclerosis with cardiac symptoms. The blood pressure at the beginning was 170/100 m.m. Hg. Two years ago he complained of attacks of vertigo and nystagmus. His blood pressure at this time was 150/90 m.m. Hg. These attacks were entirely relieved when theobromine was given. On Jan. 21, 1932, he became greatly agitated and confused, in which state he was admitted to the hospital. There was no evidence of muscle involvement except for a "thickness of the tongue." His blood pressure was 130/90 m.m. Hg. As his confusion subsided, a moderate aphasia was noted and a continuance of the difficulty with enunciation, both of which were increased by fatigue and moderate use of alcohol. This condition was continued until February when ephedrine sulphate, grain ⅜, was administered orally, twice daily. The blood pressure gradually rose to a systolic of 150 to 170 m.m. Hg. Constant improvement was noted and in a few days all cerebral symptoms disappeared. In August, 1932, he complained of weakness and trembling in the knees. These symptoms apparently were the effect of the ephedrine, which was discontinued. The last of September, 1932, the cerebral symptoms reappeared and ephedrine sulphate, grain ⅜ and Amytal grain ½, was given twice daily. This was continued until Jan. 1, 1933, when he complained of generalized abdominal pain for a period of three weeks. The discontinuance of the ephedrine sulphate had no effect upon this pain so its use has been resumed. During the past year his general circulatory condition has been much improved.

Mr. G. W., a teacher seventy-one years of age, on Oct. 3, 1932, complained of headache and vertigo, followed rapidly by aphasia and word deafness to a degree making conversation impossible. In 1925 his blood pressure was 170/100 m.m. Hg. Since then it has ranged from 170 to 190 systolic. During the first few hours following the above attack the blood pressure fell to 130/90 m.m. Hg. Twelve hours after the onset he was given ephedrine sulphate, grain ⅜ and Amytal grain ½. Within an hour the aphasia had sufficiently improved to obtain a fair history of the attack. The following morning, twelve hours later, the condition was the same as that preceding the initial dose. One hour later, after a second dose, he showed the marked improvement. From this time on it was given every six hours. The blood pressure ranged from 145 to 160 m.m. Hg. systolic. The cerebral lesion advanced slowly until, by the fourth day, there was a complete right-sided hemiplegia. The aphasia increased slightly for three days and then improvement occurred rapidly. There was no coma at any time. This was a case of apparently slowly forming trombosis and although there was immediate evidence of increased cerebral circulation, there can be no conclusions drawn as to whether the extent of the lesion was greatly influenced by the increase in blood pressure. He died suddenly of a coronary thrombosis upon the seventeenth day of his illness.

Miss M., a spinster sixty-eight years of age, has had frequent attacks of angina pectoris of effort. Examination showed marked generalized arteriosclerosis and moderate increase in the size of the left ventricle. No edema was present. During the preceding three weeks the attacks of pain had increased in frequency and followed much less exertion. When seen, Aug. 1, 1932, she was having frequent attacks while lying in bed. The blood pressure was 150/100 m.m. Hg. Ephedrine grain ⅜ and Amytal grain ½ caused marked improvement in the pain when the blood pressure was raised to 170/105 m.m. Hg. She has continued to improve on this therapy plus theobromine.

Mrs. K., a housewife fifty-five years of age, complained of fatigue. Examination was essentially negative except for a blood pressure of 110/80. She was given ephedrine sulphate, grain ⅜ and Amytal grain ½, for one week. This caused no increase in blood pressure and the patient complained so greatly of "nervousness" that treatment had to be discontinued.

DISCUSSION

These observations have been recorded for two reasons. First, it is considered important to call attention to the fact that a fall of blood pressure during the course of hypertension may result in much more serious symptoms than those likely to occur during a maintained high blood pressure. While in this series the blood pressures have been low, marked symptoms have been frequently observed in other cases, when the pressure was 190 to 200 systolic, having been before the symptoms, 30 to 40 m.m. Hg. higher. The most frequent vascular accident in arteriosclerosis is the formation of an intra-vascular thrombus. This is more likely to occur with a slowing of the blood stream in a narrowed, sclerotic artery. Rupture of an arteriosclerotis artery is comparatively rare. With these facts in mind, attempts made to artificially lower blood pressure may be questioned on the ground of increasing the dangers of serious complications.

Second, in this series of observations ephedrine sulphate has been found efficacious in raising blood pressure and in this manner relieving the symptoms resulting from the increased pressure. The use of small doses of amytal have prevented

the unpleasant symptoms that often result from the continued administration of ephedrine alone, namely, weakness, trembling and gastro-intestinal distress.

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Eli Lilly & Sons Co. have kindly furnished the Ephedrine and Amytal for this study.

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HYPERGLYCEMIC STATES AND INSULIN RESISTANCE

With Case Report of Sclerosis of Pancreas with Persistent Glycemia of Over 300 mg.

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Diminished response to insulin is encountered in diabetics as a result of complicating pathological conditions of other structures. Seemingly, in spite of increasing dosages of insulin, the blood sugar remains at a high level and glycosuria persists. The usual amounts of insulin have no effect and large amounts of insulin but little.

In reviewing the literature, one finds reports of extremely high blood sugar determinations—some ten to fifteen times the normal sugar content of the blood. Curtis and Dixon[1] report a case with a blood sugar of 1620 mg.; Foster[2] reports a sugar of 1260 mg.; Haines and Davis[3] report three cases with 1120 mg., 1080 mg., and 1056 mg., respectively; all with recovery. Pitfield[4] reports a case with 1700 mg., and Joslin[5] one of 1370 mg. These two cases died. All of these patients, however, were diabetics in acute comatose condition with acute disturbances.

In diabetics, pathological conditions of the pancreas or other structures may cause a persistent hyperglycemia and glycosuria. The case listed below is that of a patient who had a persistent glycemia of 300 to 580 mg. for five months. Repeated daily injections of a hundred units of insulin over a period of a month produced no apparent sugar reduction.

Presented at the monthly meeting of medical staff, Elgin State Hospital, May, 1933.

This patient was a married white female of thirty years of age who had been committed to the Elgin State Hospital in March, 1931, because of alcoholic excesses. Her familial history was negative. Her total education was limited to a schooling of three months duration. Physical examination revealed a fairly well developed white female weighing 148 pounds with no abnormalities except absent knee jerks. Mental examination failed to reveal any definite psychotic manifestations. Laboratory tests revealed a negative urine, a four plus blood Wassermann and a negative spinal fluid. On May 31, 1931, she was discharged as sane.

Ten months later (June 14, 1932) she was returned, as a voluntary patient, because she had lost forty pounds in weight and was unable to find any work. Her mental re-examination was negative; physical examination revealed a marked pyorrhea, scattered crepitant rales in both apices, blood pressure of 110/70, pulse of 80, and weight of 102 pounds. Laboratory examination revealed a positive blood Wassermann and a negative spinal fluid. Binet-Simon test showed a mental age of twelve years. She was again diagnosed without psychosis.

At the tubercular ward she ran a low grade afternoon temperature elevation and was classified as a case of incipient pulmonary tuberculosis. This was later confirmed by finding tubercle bacilli in her sputum. Her temperature elevation continued from July to November, 1932.

In October, 1932, this patient was sent to the Hospital ward because of a glycosuria and a blood sugar of 413.6 mg. per 100 c. c. of blood (as determined by Benedict's modification of Folin—Wu). During her hospital stay on a low carbohydrate diet she had a daily glycosuria varying from twenty to eighty grams a day and a glycemia from 300 to 566 mg. in spite of gradually increasing dosage of insulin. The patient revealed no physical weakness or distress from her hyperglycemia. At one time on a milk diet of 48 ounces a day or a sugar intake of 86.4 grams she ran a glycemia of 500 mg. and a glycosuria of 22.5 grams. During the month of February, 1933, she received a hundred units of insulin daily without apparent change in blood and urinary sugar. Because of this lack of response, the findings of tuberculosis, and the positive serology, the possibility of tuberculosis or syphilis of the pancreas was considered.

On March 16, 1933, she developed a right basal broncho-pneumonia and symptoms of acidosis. Death occurred four days later.

Post mortem revealed a bilateral upper lobe tuberculosis with left apical cavitation and a right basal bronchopneumonia. The pancreas, weighing 55 grams, was small, white, firm, and sclerotic. Sectioning, performed with difficulty, revealed numerous small angular calcified concretions varying from 1 to 3 m. m. in size. Microscopic examination revealed replacement of the pancreas by connective tissue. No islands of Langerhans were detected in repeated sections. No tubercles were found in or about the pancreas. The

pathologist was unable to state whether the sclerosis was due to tuberculosis or syphilis of the pancreas.

TABLE SHOWING GLYCEMIA AND GLYCOSURIA

Date:	*Blood Sugar* (Mg. per 100 c.c.)	*Total Grams of* Sugar in Urine:	*Units of Insulin* Daily Dosage at
10/ 4/32	413.6	20.0	
10/ 8/32	428.4	20.0	
10/11/32	.....	....	30
11/ 4/32	463.4	32.0	"
11/ 5/32	.....	....	55
11/11/32	375.0	8.0	"
11/12/32	.....	....	45
11/15/32	436.4	64.0	"
11/23/32	422.4	78.0	"
11/29/32	491.9	60.0	"
12/ 7/32	389.6	50.0	"
12/15/32	441.1	50.0	"
12/23/32	545.2	60.0	"
12/30/32	352.9	70.0	"
1/ 6/33	566.0	76.0	"
1/14/33	.....	....	75
1/17/33	555.5	70.0	"
1/25/33	107.1	84.0	"
1/31/33	461.5	70.0	"
2/12/33	.....	....	100
2/14/33	545.4	64.0	"
2/17/33	285.6	52.0	"
2/22/33	400.0	76.0	"
2/24/33	337.0	45.0	"
3/ 1/33	553.0	35.0	"
3/ 6/33	480.1	70.0	"
3/ 9/33	500.0	22.5	"
3/14/33	517.8	34.5	"
3/16/33	300.0	15.0	

This was a persistent hyperglycemic state for a period of five months that failed to show the normal response to insulin. In reviewing the literature one finds scattered reports of cases with varying etiological factors which have produced abnormal insulin response in diabetics. By insulin resistance or cases refractory to insulin, is meant cases that do not respond to insulin. In the usual diabetic, one unit of insulin will utilize approximately two grams of sugar. In the refractory cases one unit may utilize only one gram or half a gram or less. Joslin states that insulin refractory cases do not exist, they are only relatively refractory, i. e., patients will respond by reduction of blood sugar if sufficient amount of insulin is administered but they do not respond in the normal way.

If an unusually large amount of insulin is required by a patient to produce a reduction of the blood sugar, factors complicating diabetes should be searched for. Root,[6] in his article, gives a very comprehensive classification of insulin refractory cases which is incorporated in this outline of etiological factors.

1. *In liver pathology,* as hypertrophic cirrhosis, chronic hepatic insufficiency, pigmentary liver and luetic hepatitis, unusual amounts may be required. This may be due to disturbance in the glycogen storage and utilization.

2. *Endocrine dysfunctions* play an important role. Abnormalities of thyroid, pituitary, and adrenals may interfere with the action of insulin.

Numerous articles have described the interrelationship of the thyroid and pancreas. Hyperthyroidism reduces glycogen content of the liver by making it over-responsive in discharging sugar and also by disturbing glycogen storage of the liver. Mild diabetics may become severe diabetics with onset of hyperthyroidism.

Diabetics with hyperpituitarism may require high doses of insulin. It may be that the hypersecretion of pituitary gland with a consequent unusual increase of blood sugar, may place an excess demand on the pancreas for insulin. This in turn may result in pathological conditions of the pancreas. Cushing and Davidoff, in a report of 100 cases of acromegaly, found glycosuria in 25 cases. In 11 out of 44 postmortems, of these cases that died in diabetic coma, changes were observed in the pancreas. The relationship of pituitary secretion to insulin was shown by Houssay and Magenta,[7] who found hypophysectomized dogs more sensitive to insulin. This may be a factor in explaining our recent hypoglycemic coma in the case of E. B., a patient at this hospital, who became comatose after an injection of five units of insulin and showed a mild hypoglycemic reaction after one unit of insulin. Her hypophysis roentgenologically is about twice the normal size. She may be a case of hypopituitarism and for this reason hypersensitive to insulin.

The antagonism between the adrenal and insulin has been repeatedly shown. Epinephrine produces a rise of the blood sugar curve. Thus, in a diabetic with hyperadrenalism, a hyperglycemic state may be produced.

3. *Pancreatic changes* are mentioned infrequently in the literature. Hemochromatosis or bronze diabetes with hemosiderin deposits in the pancreas may lead to insulin refractory cases. Allan,[8] reports an interesting case that required 500 units to make the urine sugar free. New growths such as carcinoma, either primary or secondary, may lead to insulin resistance. It is interesting to note that adenomas of the islands of Langerhans have been reported with hypoglycemic states due to excess secretion of insulin.

Howland, Campbell, and Maltby report an adenoma of island of Langerhans which was removed surgically with resultant relief from hypoglycemic attacks. Joslin in his discussion of insulin resistant cases does not mention tuberculosis or syphilis of the pancreas. Tuberculosis

Fig. 1. Roentgenogram of Sectioned Sclerotic Pancreas to Reveal Multiple Calcified Concretions.

of the pancreas is rare. Saphir,[9] in 100 post mortems of tubercular patients, found only four cases with tubercles, while Valzah,[10] found one case in 200 and Kudrewetzky nine in a series of 137 tubercular patients. Joslin does mention in detail, however, a case of sclerosis of the pancreas associated with cirrhosis of the liver that required 850 units of insulin day after day and who for two days before his death used 1600 units of insulin daily. Our case of sclerosis of the pancreas with calcified concretions would be grouped under this heading of pancreatic disease. Atheromatosis with hyaline changes in the pancreas should also be included.

4. *Diseases of the skin* are associated with insulin resistance. The skin probably plays a more important role in carbohydrate metabolism than has been thought. Extensive sunburn as well as pruritis of old age, are examples.

5. *Infections and acidosis* diminish the effect of insulin. Considerable interesting research has been and is being done in an attempt to explain why diabetics with infections show increase of blood sugar associated with insulin resistance.

6. *Cardiac decompensation* and *renal pathology* may be associated with diminished response to insulin in diabetics. The impaired absorption and diminished nephritic function may account for this in part.

7. *Lack of muscle tone* as seen in arthritic and bedridden patients, reduces effect of insulin.

Thus, there is a very extensive group of causative factors which contributes or influences response to insulin. The action of insulin is not simple. The entire metabolism of glucose, from its ingestion, storage as glycogen, and utilization, is involved in the response to insulin. All factors affecting carbohydrate metabolism play a role and changes in any portion of this complex mechanism may vary the action of insulin. The possibility of co-enzymes and insulin complements have been described by Glassberg, Somagyri, and Taussig,[11] and by Brugsch and Horsters. Phosphorus metabolism has been shown to be linked to glucose metabolism.

Summary: An interesting case of a diabetic refractory to insulin with persistent hyperglycemia and glycosuria, is reported.

In cases that do not normally respond to insulin, other complicating factors should be sought. Briefly, they may be listed as cases of diabetes with 1. liver pathology; 2. endocrine dysfunctions, chiefly hyperactivity of thyroid, pituitary, and adrenal; 3. pancreatic disease including carcinoma, hemochromatosis or bronze diabetes, sclerosis, and atheromatosis with hyaline change of pancreas; 4. disease of the skin; 5. infections and acidosis; 6. cardiac decompensa-

namely, that a politician is one who invariably views the public good strictly in terms of his own interests, and secondly, of the interests of certain cliques, groups or party factions to which he adheres.

To speak glibly about planning is to assume that the job can be solved by simply snatching another combination out of the alphabet. Suppose we do shift from a system of unrestricted individual enterprise over to an economy of controlled cooperation, and then begin by planning a price level! What are the dimensions of this problem alone, to say nothing of the countless others that it breeds? If you plan a price level, you must control the monetary unit, the volume and the velocity of credit, its allocation between long and short-term uses, between light and heavy industry; you must control the volume of production, the volume of investment in industry, and to control the volume of investment you must tell persons how much they shall save and what they shall do with their savings. Also the application of science to machinery and methods could not continue uncontrolled. Either you must forbid science to invent or you must control the use of savings in putting inventions to work so as to avoid unnecessarily destroying the value of either those new savings or the property represented by former savings which invention would render obsolete. Finally, you must control consumption and to control consumption you must control population.

And let it be noted in passing that once medicine is subsumed within the political and economic philosophy of the planners, it will be subordinated to the political and economic exigencies of those at the top who control. Even the pursuit of scientific investigation in Soviet Russia is not entirely divorced from political dogmas which demand that research be converted to the task of solving immediate practical problems —a belly philosophy.

One who observes the same old "spoils system" at work can only be skeptical about any plan, however Utopian its phrases, which depends upon the American political machinery to administer. There is, furthermore, a real solid basis for scepticism in the record of governmental control so far. Here is the record.

Throughout the post-war period the Federal Reserve Board tried to manage gold for us so as to keep prices down with the result that our continued export surplus took almost half the world's stock of gold. In 1927, we decided we had too much gold and the rest of the world too little and so the Federal Reserve Board reduced rates so low that $500 million of gold went abroad in search of better pay. The low rates broke the dam and a flood of money poured into the stock market. Instead of stiff rates the Board pleaded with the most speculative people in the world to stop speculating. A. C. Miller, the only economist on the board, called this the boldest operation ever attempted by the Reserve system, an operation which resulted in one of the costliest errors committed by it or any other system in the last seventy-five years. It is probably due to this experiment together with attempts to prevent liquidation once the crises came that we owe the exceptional severity of the depression.

Now it is proposed to combat the depression by forced credit expansion: to cure the evil by the very means that brought it about. Even if forced credit expansion were a *desideratum,* which it is not, and for the reasons mentioned, the expansion of credit is paralyzed by the guarantee provision in the Glass-Steagall Bill. Under the terms of this law all banks must prepare for examination as to their liquidity prior to the taking force of the act this year. Bankers must, consequently, pay particular attention to liquidity and this precludes all efforts at credit expansion and even works in the direction of credit restriction. This action tends to force a further fall in world prices and so create the very difficulties that are feared.

When it became apparent in 1930 that our foreign debtors could pay only in goods, Congress raised tariffs, placing a laurel upon a 15th century economic philosophy.

Orderly marketing imposed upon the taxpayers by politicians in 1929 cost us a billion in cash and the loss of our wheat customers to Argentina, Australia and Canada. We are now on our way to hand Egypt, India, and China a $175 million cotton market.

The "planners" propose to increase buying power by destroying income—by contraction of production. The nation is to be enriched by destruction of its wealth thereby insuring a lower

standard of living all around and the certainty of tax-supported medicine.

Employment is to be created by measures that ultimately create unemployment.

Debtors who cannot pay old debts are being urged to borrow themselves out of debt. It has been assumed that the debt situation is such an important cause of the depression that a reduction of the debt burden would automatically revive business. This idea has no foundation whatsoever. Debt, a concomitant of capitalism, was not the major cause of the breakdown of prosperity and a wiping out or a general reduction of debts could do little to revive business. "The same conditions make it unprofitable for an industry to operate if it is heavily in debt, make it unprofitable to operate if it has no debt. The automobile industry has relatively speaking, no debt, yet, it has been running at less than half-capacity for several years. Of the leading steel companies, scarcely one has a significant amount of debt, yet steel is one of the most depressed of our industries." On the other hand, agriculture, one of the chief sufferers of the debt burden, has not reduced the amount of its output or volume of employment—except forced contraction of output by government.

Inflation is proposed to make this country prosperous despite the fact that it impoverished Germany, Poland and Austria.

This is the record, and *a left-handed record it is,* of achievements not wanted.

Obviously the left hand knows not what the right hand is doing. "We have gone through the looking-glass into Wonderland where plus and minus are the same." We are trying to stimulate business and prices while frustrating private business with talk of rubber dollars and doing away with profits. We are trying to bring back prosperity by paralyzing efforts to bring it back: "by raising ourselves by our own bootstraps while cutting the straps."

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METHYL CHLORIDE POISONING

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Ever since methyl chloride has been used in refrigerators occasional cases of poisoning have occurred. H. M. Baker in 1927 described the symptoms of a group of cases occurring in employees working with methyl chloride. In 1929 Kegel and associates described a series of cases following the leakage of gas from central refrigerating systems. These cases were of a severe type with high mortality and gave a different picture from those of a more gradual poisoning. The case here described is especially interesting in its close resemblance to epidemic encephalitis, so much so, that when it occurred the family of the patient immediately suspected sleeping sickness.

H. H., 23 years old, a refrigerator repairman, returned home from work and immediately fell asleep. He could be aroused with difficulty to eat and then continued to sleep all of the next day when he was first examined. While being questioned he would momentarily arouse, but fell asleep between questions. The chief complaints were dizziness and difficulty of vision. If he attempted to get up he staggered around as if intoxicated. He could not co-ordinate hand and arm movements and could not drink a glass of water without spilling the contents. His vision was blurred. He could see somewhat more distinctly with one eye covered, but even then could not read two inch type. There was a slight drooping of the lids. Eyes reacted to light and accommodation. Reflexes were normal and no sensory disturbances would be detected. Temperature taken at four-hour intervals was always normal. Urine and blood findings were normal.

The somnolence and visual symptoms continued unabated for two weeks. During this time he slept except when aroused for feedings. He had to be fed. At this time he developed an occasional spell of restlessness lasting for a few hours. After three weeks he began to read large print and a week later his vision was about normal, although his eyes tired very quickly. By the end of five weeks all symptoms had cleared up. As far as could be determined no permanent injury resulted.

This man stated that he had repaired refrigerators most of which contained methyl chloride or sulphur dioxide. He was always rather careful with the sulphur dioxide because of the irritation to the upper respiratory tract. On the other hand along with most of the employees he was rather indifferent to methyl chloride fumes as the effect of inhaling this gas was much like that of a large dose of alcohol. Because of the lack of unpleasant odor it was not easily detected. A gas that gives such serious nervous symptoms could do severe damage and at times may leave serious residual damage.

The picture of somnolence with visual symptoms suggests encephalitis, but the history of occupation with persistent normal temperature plus the good recovery makes the diagnosis of

methyl chloride poisoning very certain. The treatment is not specific. Forced fluids plus alkalies are suggested.

Summary: A case of methyl chloride poisoning resembling epidemic encephalitis is described. People working with this gas should be warned of these toxic symptoms and should be better protected. Finally, a more safe and satisfactory refrigerant should be used. Several of these are now gradually replacing the older types.

5 South Wabash Avenue.

EVENTRATION

Case Report with Review of Literature

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Eventration, while a rather rare anomaly, is classified as a monstrosity of the newborn and has heretofore been reported in the literature.

In a review of same, I found only one other case report resembling the pathology in the case herewith reported. During my review I found that the classification of monstrosities is a rather extensive group, so I have endeavored to ally my report as closely as possible to the types coming under the heading.

Wolfe[1] in 1925 reported a case of fetal monster which had other deformities besides the abdominal type.

Hedblom,[2] in 1925, reported a series of cases under the heading of herniae, 7 of which were congenital at birth, but associated with other defects.

Pribam,[3] in 1926, reported a monstrosity with an eventration which had other defects.

Stephan,[4] in 1917-18, reported 2 cases, one of a 6 month old fetus and another of 7 months. In the first case the mother was a Para 2 and had one normal child, but accompanying this case of eventration the fetus had a spina bifida among other deformities.

In the second case the mother had 5 normal children, a history of 4 abortions done in the early months of pregnancy; and the present delivery began with a hemorrhage which was diagnosed placenta previa. The membranes were ruptured and the fetus delivered. This was another case of eventration, accompanied by the absence of the bladder, urethra and vagina.

Blasi, D.,[5] in 1927, reported a case of congenital absence of the oblique muscles of the abdominal wall.

Scheibel, O.,[6] in 1927, reported a case of ectasia abdominis congenita.

Rukstinat and Balfour,[7] in 1928, reported a case of twin born with a lower abdominal defect with absence of the genitalia.

Poli, A.,[8] in 1929, reported another case where the abdominal muscles were absent.

Giangiobbe, A. P.,[9] in 1929, reported a case of congenital total hernia of the newborn, due to absence of the left side of the diaphragm.

Bisbini, B.,[10] from 1922 to 1930, reported on the differential diagnosis of diaphragmatic eventration and hernia.

Fig. 1. Photos Taken Day of Autopsy Showing Liver

Fig. 2. Showing Small Bowel

Williams, C.,[11] in 1930, reported a case of amniotic hernia which resembled my case in all detail. In this case an attempt was made to close the abdominal aperture, but with fatal results. In this report the technique of the operation is described and no mention was made as to cases of recoveries in similar cases where operation was performed.

Polayes, S. H.,[12] in 1931, reported a case of nonencephalus with eventration of the abdominal and chest organs, polyhydramnios along with other anomalies.

Cullen[13] in the Text "The Umbilicus and Its Diseases" describes various conditions arising from the defects of the cord.

Peisachon, W.,[14] in 1931, reported a case of congenital malformation of one twin with the absence of the abdominal wall, omentum, sex organs, ureter, bladder, accompanied by eventra-

tion, lordosis and torsion of the lower extremities.

As you can readily see the literature is composed of monstrosities of all varieties, and only one case which did not have other deformities than the case herewith reported.

The following is a complete case report:

Mrs. M. H., aged 35 years, married, 4 years occupation housewife.

Family History: Mother died of carcinoma of the breast, father died cause unknown; one brother alive and well, no sisters; three aunts, one has diabetes, two alive and well; one uncle died of carcinoma and one uncle alive and well. History of twins on mother's side of family both alive and normal in all respects.

Marital History: Married 4 years; husband alive and well; husband has one child living and well by former marriage, no history of other pregnancies with former wife.

Previous Illnesses: Measles, scarlet fever, pneumonia, septic sore throats. Never operated on. Always has been fairly healthy.

General History: Essentially negative. This is the patient's first marriage.

Menstrual History: Began at age 12; 28-day variety, flow of 4 to 5 days duration, moderate in amount. No history of dysmenorrhea, menorrhagia or metrorrhagia. No leukorrheas. Date of last menstruation in this pregnancy, March 13, 1931.

Pregnancy History: Patient was pregnant 4 times previous to this. The first one ended in an induced abortion at 2 months. The second ended with a spontaneous abortion at 2 months. The third one ended the same way and the fourth one ended with a spontaneous abortion at 2½ months. However there were no apparent complications with any of the abortions. At the onset of the present and last pregnancy patient attempted to induce abortion with the aid of medication and douches. Several days after instituting her treatment she started to flow and passed a large clot which she described as being the size of an egg. The bleeding stopped in a day or two following. She then decided that she was going to let everything alone and go through with the pregnancy.

Examination: Patient consulted me April 30, 1931, to undergo a general examination with the following findings:

Temperature, pulse and respirations were normal.

Blood pressure: systolic 100, diastolic 80. Pupils reacted to light and accommodation; nose, eyes and ears essentially negative. Chest, heart and lungs were negative to pathology. Tonsils were present and infected. Abdomen was negative to pathology; no masses or tender points present. Vaginal examination revealed a pregnant uterus with presumptive signs present. Reflexes were present and normal. Blood count showed Hb. 80%, red cells 4,400,000, and white count 9200. Urine was essentially negative and blood Wassermann negative.

Course: Patient returned to my office on June 15, 1931, at which time she complained of pain in the left lower abdomen with a swelling. Examination at this time revealed a mass the size of a small grapefruit situated in the region of the left ovary, which was very tender to touch and tentatively diagnosed as an ovarian cyst. At this time the pelvic measurements were taken and found normal. Weight 161 lbs. During the following months the patient was kept under close observation. Blood pressure ranged from a systolic between 100 and 140 and diastolic between 80 and 90. From July to the onset of labor in December, there was a moderate edema of the lower extremities with no albumin or casts in the repeated urine tests. During the last month of the pregnancy an x-ray of the fetus was made which showed a moderately normal sized fetus and no other demonstrated pathology; with the cephalic presenting.

Patient suddenly went into labor on December 1, 1931, while asleep, with rupture of the membranes at about 2 a. m. She was admitted to the Lakeview Hospital at 4 a. m. with first stage labor pains coming at regular frequent intervals. Labor progressed rapidly when at 5:50 a. m. a rectal examination revealed complete dilatation with complete effacement of the cervix. During the second stage of labor the perineum seemingly looked as if it would tear due to rigidity of the muscles so a left-sided episiotomy was done. At 7:00 a. m. the head was delivered and soon found that something was obstructing the passage of the child. After some manipulating the head with slight traction, the shoulders would not move. Manipulation of the shoulders was instituted and soon the posterior shoulder was delivered and there came into view in the vagina a large red mass that looked at first glance as if the placenta was being delivered with the fetus. After the fetus was expelled we found that the red mass was none other than the liver which had broken through an amniotic membrane that was covering an eventration of the infant's abdomen. The fetus weighed 6 lbs. 15¾ oz. Female sex. The episiotomy was repaired. The fetus had a healthy cry and a normal color. Upon examination the baby was normal in all other respects except for the eventration. The placenta was expelled and upon examination revealed the following: Thin and tapered at the margins, containing many infarcts and calcified areas. The cord was inserted laterally and measured 50 cm. long, proximal portion attached to the left portion of the abdominal opening of the fetus. An attempt was made to return the contents exposed by plastic measures and finally edges of the abdominal opening were brought together, but the infant succumbed the same day. The following is an autopsy report made the following day: Baby girl H. born in the Lakeview Hospital and died the same day. Body is that of a female newborn, weight as above, length 52 cm; head circumference 33½ cm; bisacromial circumference 33½ cm. Infant born with complete eventration; the liver, stomach, small intestines and colon being exposed outside the abdominal cavity. There was a defect in all the layers of the lower abdominal wall comprising an opening about 10 cm. long and 6 cm. wide. The defect gave the impression of being a failure of the abdominal wall parieties to close, forming a herniation into the umbilical cord insertion at the um-

bilical region. The kidneys, descending colon, uterus and its appendages were within the abdominal cavity and in normal position. Rotation of the colon had not taken place. Thoracic cavity was normal. Eyes, ears, nose, throat, scalp, chest, extremities, and spine were all normal and showed no deviations from the normal.

Anatomical Diagnosis: Eventration.

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THE SEX HORMONES

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Endocrinology is recognized as one of the most important branches of medicine. No one now questions the great influence of the glands of internal secretion on important physiologic processes. Whether we shall remain infantile, be dwarfs, normal sized individuals or giants; whether we shall be idiots, imbeciles, morons, normal mental beings, intellectuals or even geniuses; whether we shall develop sexually at the proper age and function normally; whether we shall be sluggish, plodding and retiring, or quick, alert and aggressive, all of these and more characteristics depend largely upon when and how the different ductless glands of our body function. The control of the vital life processes such as the maintenance of a normal cardiac and respiratory rate, the digestion of food and assimilation of the products of digestion, their storage in the body where they represent potential energy and the release of these stored products to produce dynamic energy, our sense of euphoria, all are influenced by the time of and the degree of function of the ductless glands.

In the last decade increasing interest has been manifested in the study of the organs of internal secretion and their function. Probably more research work is being carried on in this field than in any other branch of medicine, especially in relation to sex and the internal secretions, therefore it may not be amiss to present a resume of the more important information on this subject as we have it at the present time. While the biological chemists have been busily engaged in isolating new hormones most of our knowledge on this subject is based upon animal experimentation and to a lesser extent upon human clinical application. Much is theoretical, and even hypothetical. Frequently skilled and careful research workers report conflicting results obtained with practically the same experiment.

The glands and structures that elaborate secretions which influence sex function are the anterior pituitary, the gonads and possibly the placenta with other glands such as the posterior pituitary, the thyroid, the adrenals, etc., having an indirect and minor role. The anterior pituitary is probably the most important ductless gland in the body. Harvey Cushing long ago referred to it as "the Keystone of the endocrine arch." Nature has placed this important structure in the most invulnerable part of the organism, i.e., in the sella turcica of the sphenoid bone, almost the exact center of the head where the possibility of accidental injury is very remote. Formerly it was thought that the anterior hypophysis was essential to life because its removal invariably resulted in death. The operation was done through the cranium and obviously was a very formidable procedure, resulting in contusion and injury to the brain, and often accompanied by serious hemorrhage or infection. Newer methods of approach from below, through the sphenoid, by the transbuccal route as demonstrated by McLean[1] or through the pharynx as employed by Smith,[2] Dandy and Reichert[3] and others, which avoid the possibility of contiguous brain injury, has proved that complete hypophy-

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sectomy in not incompatible with life. Intravenous injection of hypertonic salt solution causing a physiologic shrinkage of the brain by partial dehydration, also facilitates removal of the gland.

Smith[2] pointed out that hypophysectomy causes an invariable and charactertistic syndrome in the rat; inhibition of growth in the young animal and a loss of weight in the mature, atrophy of the thyroid, suprarenal cortex, sex organs, weakness and cachexia. The animal survives for months. A lesion produced in the hypothalmic region of the brain (tuber cinereum) reached by the transtemporal route, without injury to the pituitary, gives rise to a syndrome which is distinct from that caused by pituitary ablation. This tuberal syndrome is characterized by extreme obesity, and an atrophy of the genital system; neither the thyroid nor the suprarenal cortex atrophy. Polyuria has been observed.

The anterior pituitary has three important types of cells, viz., chromophobe, eosinophile and basophile. Difference of opinion exists as to the importance of the chromophobe cells. Biedl believes that they are the precursors of the eosinophile and basophile cells. Others are of the opinion that only the basophile cells are derived from this source. Approximately two-thirds of the intracellar tumors not associated with acromegaly are composed almost entirely of chomophobe cells and the symptoms produced are the result of pressure rather than of function.

Pregnancy and castration are each productive of a definite cell type in the anterior pituitary, viz., pregnancy cells and cells of castration. Evans states that the pregnancy cells have no demonstrable granules and that hyperplasia of this type of cell is sufficient to cause enlargement of the hypophysis during the gravid state. Castration causes the appearance of two histologic changes in the anterior pituitary, namely, 1. cells of castration which are two or three times the size of the normal cells found in this gland and a relative increase in the size and number of the eosinophiles.

It is known that during pregnancy and following castration hypertrophy of the anterior hypophysis occurs. With this fact in mind and with the knowledge that the pituitary body if firmly fitted into the sella turcica, covered over by the rather dense diaphragmasella, one may at least conjecture that sufficient pressure may be produced which if long continued may cause partial inhibition of function or atrophy of the gland, which may be more or less permanent, and which may account for the cases of oligomenorrhea and amenorrhea, frequently associated with obesity that often date from some pregnancy.

The Growth Hormone. Evans and Long[4] in 1921, and Putnam, Benedict and Teel[5] in 1929, disclosed the presence of a growth hormone of the anterior lobe. Cushing and Davidoff[6] and others have rather firmly established the fact that the eosinophilic cells are the source of the growth hormone. Tumors of the anterior lobe that are productive of gigantism and acromegaly are composed almost entirely of these cells.

The Gonad Stimulating Hormone. Zondek,[7] February, 1926, and Smith,[8] November, 1926, proved the presence of a gonad-stimulating hormone of the anterior hypophysis by the production of Graafian follicle development, sexual maturity and the formation of corpora lutea in immature white rats and mice within 3 to 5 days by the introduction of anterior hypophyseal tissue subcutaneously. For a long time there was some controversy as to the presence of two gonad-stimulating hormones of the anterior lobe, viz., a follicle stimulating and a luteinizing one. The consensus of opinion at the present time is that there is only one hormone and the difference in effect is a quantitative one and depends upon the amount of hormone present and the physiological state of the receptor organ at a given time.

Evans, Meyer and Simpson[9] did some experiments which for a time made it appear possible that the growth hormone might be transformed into the gonad-stimulating hormone. It was known that prolan (anterior pituitary-like hormone from urine of pregnant women) was strikingly ineffective in its action upon the ovaries of hypophysectomized animals. This led to the belief that the hypophysis must in some way aid the action of prolan. They combined injections of prolan with sex-free growth hormone and also with growth-free sex hormone and obtained activation only of their growth hormone with the production of ovaries greater than can be predicted by the addative effects of either hormone injected separately. Prolan did not react on their growth-free sex hormone, which led them to conclude they were dealing with a prohormone

(growth hormone and an activator) prolan. Leonard later[10] found that extracts rich in gonadotropic hormone and free of growth-hormone could equally well be still further activated in their gonadotropic properties by the addition of prolan. Evans[11] ventures the opinion that there is a substance secreted by the hypophysis independent of the gonadotropic hormone of the anterior lobe which he terms an activator of prolan, and which when added to prolan, confers a stimulus to the gonads in excess of anything hitherto observed.

The anterior pituitary gonadotropic hormone normally stimulates Graafian follicle development and after rupture of the ripened follicle at about the fourteenth day, promotes formation of the corpus luteum from the granulosa cells. That this hypophyseal hormone does not act directly upon the uterus is evidenced by the fact that in castrated animals its administration has no effect upon the uterus.

The Ovarian Follicular Hormone. Stockard and Papanicolaou[12] described an exact method for following the estrual changes in the living guinea pig by the vaginal smear. This method has been applied to the correlation of the estrual phenomena in the genital organs of the rat[13] and the mouse.[14] This biological test laid the foundation for experimentation with ovarian hormones. Allen and Doisy[15] employing ovarian follicle fluid from hogs, produced pubertus precox in immature albino rats. The vagina of the immature rat is completely closed, its external third being a solid cord of cells. They found that the injection of the ovarian follicular hormone into immature rats, both normal and spayed, induced a sexually mature condition in the genital tract similar to that of an animal experiencing its first estrus. This was effected in from two to three days by from four to six injections of an active extract at an age as early as 26 days, or from twenty to thirty days before the usual time of the attainment of puberty. This work was later confirmed by Frank, Kingery and Gustafson.[16]

Allen and Doisy[17] also devised a simple method of testing the potency of the follicular hormone by injecting a potent extract into spayed rats in which there was atrophy of the vaginal epithelium with the production of the estrous cycle on the third day.

Frank[18] demonstrated that an analogous potent hormone can be obtained from the follicles, the corpus luteum and the blood of pregnant women. Allen, Pratt and Doisy[19] determined quantitatively the ovarian follicular hormone in the follicle, corpus luteum and placenta of the human female, and of some animals including the cow and pig.

Aschheim and Zondek[20] in 1927 found that the urine of pregnant women contains large quantities of the follicular hormone. Doisy[21] using such urine was able to isolate the follicular hormone in crystalline form. Butenandt (Germany) working independently made the same discovery later. This substance was named theelin by Doisy and like other isolated hormones, is of great potency.

It might be well here to mention that there has been some criticism for designating theelin as a hormone. The objections being 1. that it is an excretion product found in the urine of pregnant women, and 2. the fact that estrogenic substances of varying mild potency have been extracted from potatoes, sugar beets, yeast, rice, wheat and lately from asphaltum by Sir E. C. Dodds, London. However, such authorities as Edgar Allen,[22] Hisaw Leonard, and Fevold[23] and many others of equal prominence and just recently Herbert M. Evans[11] have referred to this substance obtained from the urine, as the ovarian follicular hormone. Great numbers of experiments have been done upon animals in which theelin, progynon and other related extractives of urine have been used and the results simulate those done by the use of follicular fluid itself. The work done by Edgar Allen[24] with theelin on eight ovariectomized monkeys which is representative of the research accomplished by Hisaw, Corner, Hartman, Morrell and others, led him to make the following statements, "Theelin alone of ovarian hormones seems sufficient to supply the essential mechanism of menstruation. Theelin produces the growth phase in the accessory genital organs. This includes accelerated growth of the vaginal epithelium, growth of the glands of the cervix and body of the uterus to the interval condition, probably some repair of ciliation of the tubes, and toward the end of this interval the initiation of growth in the mammary gland tree including the nipple."

Later Werner and Collier[25] were able to substantiate most of the statements of Allen, by the use of theelin in thirteen castrated women used in two experiments. However, any argumenta-

tion on this question can be definitely closed by isolating from follicular fluid a crystalline substance identical with theelin in chemical composition and structure and which substance shall duplicate the action of theelin as obtained from the urine by the method of Doisy. This has not as yet been reported.

Reynolds and Allen[26] have shown that theelin produces rhythmical uterine contractions in the rabbit.

Meyer, Leonard, Hisaw and Martin[27] demonstrated the inhibitory influence of theelin and amniotin on the gonad-stimulating complex of the anterior pituitary of castrated male and female rats. Castrated male and female rats were injected with estrin (theelin and amniotin) and their hypophyses removed and implanted into immature female rats. The ovaries of the immature recipients were weighed and compared with ovaries of immature female rats which had received implants of the hypophyses of castrated male and female rats not injected with estrin. It was found that the ovaries of those immature rats which received the hypophyses of the males injected with estrin weighed 45 per cent. less than the ovaries of the control recipients. The ovaries of the rats implanted with the hypophyses of castrated female rats injected with estrin weighed 47 per cent. less than those of the control animals. These facts show that estrin decreases the amount of gonad-stimulating complex in the hypophyses of castrated male and female rats when compared with control animals. It is concluded that this decrease is the result of the inhibition of production of the gonad-stimulating complex by estrin.

Hormones of the Corpus Luteum. In 1929 Corner and Allen[28] described the preparation by the extration of corpora lutea with boiling alcohol, of a hormone which produced proliferation of the castrate rabbit uterus and which also maintained the embryos. This hormone was subsequently named progestin. Fevold, Hisaw and Leonard,[29] 1931, claimed to have extracted three hormones from the corpora lutea of the sow, viz., relaxin, which has a specific action on the pelvic ligaments; corporin, which is concerned with the physiology of the uterus and a mucifying principle which acts on the vaginal mucosa.

Duncan,[30] 1854, was the first to observe and report the relaxation of the pelvic ligaments during pregnancy. Hisaw[31] made a physiological study of these pelvic changes in the pregnant guinea pig and found them to be under hormonal control. He found that the blood serum of pregnant guinea pigs, dogs, cats, sows, mares and rabbits contained a substance which when injected into virgin guinea pigs during estrus, would produce marked relaxation of the pelvic ligaments within eight to twelve hours. Later it was found that this substance could be extracted in abundance from the maternal and fetal parts of the placenta and the corpora lutea of the sow. This active principle was prepared in a relatively pure state from the sow corpora lutea by Hisaw, Fevold and Meyer[32] and they named it relaxin. An important point brought out in this work was the fact that the maximum response to relaxin occurred only during or close to the time of estrus. Continued large doses of relaxin would not prevent a return to the original rigid condition during the following diestrum. It was also found that the pelves of castrated females would not respond to relaxin until the animals had been brought under the influence of theelin, and when both hormones were given simultaneously, relaxin did not act until theelin had produced its effect. This observation indicated that neither theelin nor relaxin alone could elicit relaxation of the guinea pig pelvis, but that the reaction was due to a "one-two" synergistic relationship between the two hormones.

Progestin (Corner and Allen) and corporin (Hisaw and Fevold) both derived from corpora lutea, but with some variation in technique, are considered to be similar substances.

Allen[33] described a process for the preparation of a purified progestin in crystalline form, but he has reason to believe that it might be contaminated with minute amounts of estrin or theelin. In small amounts progestin does not produce heat in rats, but injection of large amounts does have this effect, and this last action is a function of estrin or theelin. Fevold, Hisaw and Leonard[34] have produced a crystalline substance that has high potency in producing progestational modification in the uteri of rabbits, but they state that "they do not know that the crystals are the pure hormone, for the uteri of rabbits, which show pronounced progestational modification as a result of treatment with the crystalline preparation, continue to give a strong response to pituitrin, which is in direct contrast to the response of the uteri of pregnant and

pseudopregnant rabbits or those which have received crude corporin preparations," which inhibit uterine contraction as produced by pituitrin.

The mucifying factor which Fevold, Hisaw and Leonard have separated from their corporin and relaxin may be estrin or theelin which was not removed by their chemical method of separation. Robson and Wiesner[35] found that crude estrogenic extracts will produce mucification of the vagina of mice if subcornifying doses are given, and Meyer and Allen[36] have found this true for rats, mice and guinea pigs, following the extracts of corpora lutea, extracts of male urine (which contained the estrus hormone) and crystalline theelin. Hisaw[37] states "these results very strongly indicate that theelin is either directly or indirectly responsible for vaginal mucification and suggests the possibility that positive results reported for corpus luteum extracts may have been due to the presence of small amounts of theelin."

Progestational Changes in the Uterus. Bouin and Ancel[38] were the first to demonstrate that anatomical changes actually occurred in the uterus of the rabbit in conjunction with development of corpora lutea. They also showed that removal of the corpora lutea by excision or cauterization prevented formation of the progestational condition.

Corner and Allen[39] were the first to prove by means of extracts, that the progestational changes in the rabbit's uterus were due to a specific hormone of the corpus luteum. Hisaw and Leonard[40] confirmed the results of Corner and Allen and proved that the progestational changes in the uterus of the rabbit were the result of a "one-two" reaction, in which the follicular hormone must precede the action of corporin or progestin. The follicular phase is characterized by rapid endometrial growth associated with mitotic activity; the glands are straight or only slightly coiled and the uterus is hyperemic. During the luteal phase the glands become coiled or assume the so-called "cork-screw" appearance and dilate. The cells of the glandular and uterine epithelium swell, secrete actively, the outer surfaces become frayed and mitotic figures are very few or absent.

Leonard, Hisaw and Fevold[41] have recently made studies to determine the quantitative effect of theelin and corporin upon the uterus of the rabbit. They found that the endometrium of the rabbit uterus cannot respond to theelin and corporin at the same time, but that any response elicited depended upon which hormone had the quantitative advantage provided the uterus had previously been sensitized by theelin. They also proved that corporin or progestin do not act on an endometrium which has not first been primed or conditioned by theelin.

Allen[42] using theelin, and Morrell, et al[43] by the use of amniotin produced marked growth of the endometrium of monkeys associated with great mitotic activity and found that uterine bleeding follows within a few days after the discontinuance of treatment. These endometrial changes are typical of the follicular phase of the normal cycle.

Werner and Collier[44] in two experiments in which thirteen castrated women having their uteri intact were used (5 women in the first experiment and 8 women in the second) found that theelin restores the breasts and genital tract of women to apparently the normal sexual state after previous castration atrophy; that theelin produces changes in the atrophied endometrium of castrated women that approximate or equal the interval changes found in normal women at the time of ovulation; that theelin does not produce the pregravid changes in the endometrium of castrated women; that bleeding occurs from this theelin-induced endometrium within 3 to 5 days following cessation of injections and in several instances has occurred without evidence of endometrial growth. Uterine bleeding also occurred frequently while injections were being given. This bleeding was accompanied by the subjective symptomatology usually experienced by normal women during menstruation and was qualitatively undistinguishable from menstruation in normal women. Theelin relieved the subjective symptosm that occur in women following castration, and 9 of the 10 women treated in both experiments stated that "libido was markedly increased."

Hisaw, Meyer and Fevold, 1930 and 1932,[45] produced the premenstrual endometrium in castrated adult monkeys (Macacus rhesus) by first injecting theelin for 10 to 15 days and following this by a series of injections of corporin. They also found that uterine bleeding, which usually occurs within five to nine days following discontinuance of theelin, was not postponed by corporin, nor could corporin, in what was consid-

ered otherwise sufficient dosage, affect changes in the endometrium when given in conjunction with large amounts of theelin.

Dependence of Gestation Upon the Corpus Luteum. Fraenkel and Cohn, 1901, and Fraenkel, 1903,[46] first demonstrated that extirpation of the ovaries or all of the corpora lutea from pregnant rabbits before implantation of the embryos, between implantation and the 14th day or from the fourteenth to the eighteenth day terminated pregnancy in all cases, while similar operations after the 20th day may be without effect. Harris[47] found that bilateral ovariectomy of pregnant mice always produced resorption or abortion. Loeb[48] found that if the corpora lutea are removed from the ovaries of the guinea pig before the end of the second day after coitus, pregnancy is invariably terminated, but if the operation is performed at a later time, even before implantation, normal gestation may occur. He assumes that the corpora lutea have sensitized the uterus sufficiently by the end of the second day that it responds to the implantation reactions of the ova.

Adsell,[49] from a review of the literature, found in 34 cases of bilateral ovariectomy in human beings during pregnancy ranging from the first to the 7th month that only four instances of interrupted gestation occurred. It is probable that many cases in which abortion occurred, were not reported. It seems evident that the corpus luteum has an important function in forming and maintaining a proper physiological environment in the uterus for the normal development of the embryo.

Effect of Corpus Luteum on Follicle Development and Ovulation. Beard, 1897,[50] and Prenant, 1898,[51] first suggested that the corpus luteum might be the inhibitor of ovulation during pregnancy, to which idea has been more recently added the thought that it might also be responsible for the suppression of follicular activity during the estrous cycle. Loeb, 1911, found that extirpation of the corpora lutea of the ovaries of guinea pigs accelerated the next ovulation, while extirpation of other parts of the ovaries had no such effect. Loeb and Hesselberg, 1917,[52] reported that ovulation during pregnancy may follow excision of the corpora lutea. Williams, 1921,[53] and Hammond, 1927,[54] found that if the corpus luteum of the nonpregnant cow was squeezed out by rectal manipulation that estrus and ovulation usually followed within forty-eight hours. Jares,[55] found that it required the injection of about three times as much pregnancy urine to induce ovulation in rabbits in the presence of corpora lutea as it did in their absence. His interpretation of the results in this series of experiments is that the corpus luteum exerts an inhibitory influence upon the action of the gonad-stimulating substance or substances of the anterior hypophysis, or the similarly acting substance in pregnancy urine. Loeb[56] stressed the fact that in the guinea pig, follicles may mature during the functional life of the corpora lutea, but ovulation is inhibited. This indicates that the corpus luteum does not retard growth of the follicles up to a certain point, but that it does inhibit ovulation.

The Placenta as a Source of Hormone Production. Aschheim and Zondek,[57] 1927, found both an estrogenic and an anterior pituitary-like substance in the urine of pregnant women. Doisy, Veler and Thayer,[58] 1929, reported the isolation of the crystalline follicular hormone from the urine of pregnant women. This hormone having the formula $C_{18}H_{22}O_2$ they named theelin. A second crystalline substance was also found by them, having the formula $C_{18}H_{24}O_3$ and is known as theelol. This compound is estrogenic, but does not possess the potency of theelin when injected, but it is more potent than theelin when both are administered orally.

For a while it was thought that A. P. L. extract (Prolan) from the urine was the anterior pituitary gonad-stimulating hormone, but this has been disproved. Evans and his coworkers and others[11] have found differences in the action of these two substances, viz.,

"1. They early discovered that there is a sharp limit to the effects which may be secured in 100 hours of administering any amount of prolan, no matter how frequent the interval between doses given young immature animals (rats) whereas increasing amounts of the true gonadotropic hormone from anterior lobe tissue always give increasing effects on the genital system of the young recipients. In this way it can easily be shown that the substance in the blood stream and placenta, as well as in the urine of pregnant women is prolan unadmixed with the true hypophyseal gonadotropic hormone.

2. Prolan is ineffective in increasing the development or weight of the testes in young birds (chicks

or pigeons).

3. Prolan will apparently not cause 'reddening' of the sexual skin in Macacus and related forms, whereas hypophyseal hormone accomplishes this readily.

4. Finally prolan is strikingly ineffective in hypophysectomized animals. They were able to show that even with massive doses, chronically administered, prolan may be ineffective in stirring the sexual system of hypophysectomized animals and is always less effective than in normal ones."

Collip, Selye, Anderson and Thomson[66] published an article which seems to rather definitely settle the controversy regarding the individuality of the anterior lobe gonad-stimulating and A. P. L. hormones. They found that rats hypophysectomized before puberty do not react to treatment with the anterior pituitary-like hormone as normal rats do, with enlargement of the ovaries, ripening of follicles, production of corpora lutea and secretion of estrin, but by an inconspicuous and unexpected histologic change in the ovaries; the cells of the theca become transformed into luteal cells, while granulosa cells are unaffected. They state "it thus appears that the usual action of the anterior pituitary-like hormone on the ovaries of the normal prepubertal rat or mouse (the Aschheim-Zondek reaction) is possible only because the hypophysis of the test animal is intact and presumably because there circulates in the blood of the test animal a substance, originating in the pituitary, that is complementary to the anterior pituitary-like hormone and enables it to exert its full action on the ovary instead of merely producing thecal luteinization.

Loeb[67] pointed out a quantitative species difference in the response of animals to administration of similar hormones.

Selye, Collip and Thomson[68] were able to confirm the finding of Loeb that "the anterior pituitary-like hormone administered to young female guinea-pigs does not produce a typical Aschheim-Zondek effect, but leads to thecal luteinizaton similar to that seen in hypophysectomized rats. They state "since it had been found that very young suckling rats responded in this modified way to A. P. L. hormone, which we interpret as due to the failure of the anterior pituitary at this early age to supply sufficient complementary substance, we at first considered that the guinea-pig pituitary also failed to supply this substance in adequate amounts; but it may well be that the ovary of the guinea pig is adjusted to a different balance of the two active principles and requires a relatively larger amount of the complementary substance than the rat ovary." They summarize as follows: "The anterior pituitary-like gonad-stimulating substance of the human placenta and of human pregnancy blood and urine causes merely thecal luteinization in immature rats, to very young suckling rats or to guinea-pigs. Hence, when in the normal rat it produces enlargement of follicles and presence of a complementary substance produced by the pituitary of the test animal."

The question also arose as to the source of these hormones from the urine of pregnant women. Early in the course of exploration of the distribution of theelin large amounts were found in special tissues concerned with pregnancy, especially the human placenta. At full term a placenta weighing between 500 and 700 grams may contain more than 1000 rat units of theelin. Theelin appears in the fetal membranes before the third month. Positive tests in mice have been obtained from an extract of a chorionic vesicle containing a normal 12.5 mm. human embryo of an estimated age of seven weeks by Allen, Pratt and Doisy[59]. There is an increase in the amount of theelin with the increase in the size of the placenta which rises to a maximum toward the end of gestation. Other parts of the fetal membranes contain substantial amounts of the hormone and amniotic fluid contains a large quantity. Excreted theelin decreases in amount during the 2 or 3 days following parturition. Prolan appears very early after the first missed period, reaches its maximum in a few days but continues at a high level until about the middle of the period of gestation after which it becomes gradually less, disappearing entirely about a week or ten days postpartum. The production of theelin during pregnancy is unchanged after ovariectomy. Amati[60], Probstner[61], and others have reported that urine assays following such ovariectomies show that the yield of estrin and A. P. L. hormone are undiminished. Engle[62] states "The great amounts of anterior pituitary-like hormone in blood and urine are regarded by the majority of investigators to be of placental origin, though no decisive experiment has as yet been completed." Zondek has recently expressed the opinion that these circulating hormones are first secreted by the anterior lobe and ovary, respectively, but that later the placenta secretes the same substances either alone or at the same time as the gland originally concerned.

Collip[63] extracted an alcohol soluble sub-

stance from the human placenta that he thought was a hitherto unrecognized active principle which evoked follicular growth in the ovaries of immature animals and thereby induced premature estrus. He named this preparation "emmenin." He has since stated that "he believes that emmenin is trihydroxy-estrin (theelol) with formation of corpora lutea, it does so by virtue of the some unknown substance that alters the solubility without greatly modifying the physiologic properties.

Butenandt also had a preparation which seemed similar to theelol and emmenin which he called "follicle-hormone-hydrate." He and Browne[65] examined and compared these three preparations chemically and physically and did physiological tests on mice with them. Their conclusions are that theelol and follicle-hormone-hydrate are identical substances and they state that "they have every reason to believe that emmenin is also identical with the other two." In other words they believe that theelol, emmenin and follicle-hormone-hydrate are one and the same substance.

Comment

The success attained by research workers in the field of endocrinology in the past, presages that in the not far distant future the various hormones of the ductless glands will have been isolated. Several obstacles tend to make endocrine biochemical research difficult, among which may be mentioned: 1, the minuteness of some of the ductless glands such as the parathyroids, the anterior pituitary, the follicles and corpora lutea of the ovaries, the adrenals, etc.; 2, the limited amount of glandular tissue available; and 3, the small amount of active principle present in the glands; 4, the instability of some hormones such as the A. P. L. and gonadotropic; 5, the difficulty in assay in some instances. The ultimate goal of the biochemist is chemical isolation of these hormones and determination of their structure, so that they may be made synthetically and be plentifully available to all.

It is also apparent from a review of this work how necessary vivisection and animal experimentation are to the advancement of our knowledge of endocrinology, by indicating probable or actual physiological activity of isolated substances, and a determination of unit dosages, so that application can be made to human kind. The clinical significance of past and future discoveries in endocrinology must be obvious to all.

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TOTAL GASTRECTOMY

(Esophago-Jejunostomy. An unusual case)

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Introduction: Schlatter of Switzerland was the first to have performed a successful esophago-jejunostomy in 1897. His patient died in four months, with no complications. Since then only thirty cases have been reported throughout the world.

I sincerely believe that no gastrectomy should be performed by any surgeon without having carefully studied individual case reports of previous operations of this nature. The various intricate problems that present themselves at the operating table are well exemplified by such writers as Conner, Schlatter, Finney and Rienhoff, Czerny, Stahnke, Kaiser, Moynhihan, W. J. Mayo, Balfour, E. Starr, Judd, Walters and Marshall.

I feel justified in reporting this case because, for many obvious reasons, very few of these cases are successfully performed.

This patient is Mrs. L. F., aged 45 years, who came to me with symptoms of vomiting over six-month period, loss of thirty pounds and pain in the epigastrium following a heavy meal. The symptoms grew progressively worse until she came to Chicago and entered the Grant Hospital on December 13, 1932. Her weight was one hundred thirty pounds. On physical examination a large mass was palpable in the epigastrium above the umbilicus, freely movable in all directions. X-ray examination showed carcinomatous involvement of the entire stomach bed. Chest plates were negative. The hemoglobin content was 65%, red count 3,800,000 and leucocyte count of 13,000 with an average distribution of the differential count. The urine was essentially negative.

Operation: Esophago—Jejunostomy.

On opening the abdomen I found the walls of the entire stomach diffusely involved with a gelatinous carcinoma, the pylorus and cardiac portions were also involved. I decided to remove the entire stomach and attach the esophagus to the jejunum. The mesentery was freed—the duodenum was cut about one-half inch below the pylorus and after pulling the esophagus down below the diaphragm for two or three cm. the esophagus was severed about three-fourths inch above the cardiac sphincter. Then the jejunum was raised through the transverse mesocolon and an anastomosis performed between the distal end of esophagus and side of jejunum. All layers were sutured by one row of chromic gut, in addition to the customary continuous row of silk.

Pathology: (Dr. Jaffe.)

Gross: The posterior and anterior walls were involved to about four-fifths of the circumference, about twenty mm. thick, light grayish white in color, most of the thickening is formed by the submucosa.

Microscopic: Colloid carcinoma, involving the entire thickness of the mucosa and extending into the submucosa. The lymph nodes at the greater curvature show early metastatic involvement.

Course: With the exception of one complication (to be described later) the patient recovered very nicely and was discharged on December 29, 1932, weighing one hundred five pounds. She was given a liberal liquid and semi-soft diet, eating four to six times daily.

Fig 1. X-ray showing involvement of entire stomach.

Follow-up: March 19, about three months after operation, patient returned to Chicago. X-ray study of the case showed compensatory dilatation of the proximal jejunal section. The blood picture showed slight improvement—hb. 65%, red count 4,020,000, white count 10,200, 65N.-Eos. 5, Lym. 28, Mono. 2. She has gained fourteen pounds since her discharge from hospital.

July 4, patient returned to Chicago to see the "Century of Progress." She now weighs one hundred twenty-eight pounds; eats six times daily, has a normal bowel action, feels fine and has no symptoms. Hb. is 70%, red count 3,710,000, white count 6400, 64N., E. 4, Lymph 30, Mo. 2.

October 2, weight one hundred thirty-two pounds. Eating well; six to seven times daily. Has a normal bowel action daily, no vomiting symptoms. Free acidity is absent, combined acidity ten degrees. Blood count about same as on July 4.

After-Care: Considerable has been accomplished in this case by placing the patient on dilute HCL, liver extract and iron and copper containing foods very early in her post-operative convalescence. I also stressed the importance of chewing her food well before swallowing and eating small meals.

Discussion: There is no doubt in my mind that I was greatly influenced in the choice of operation between esophago-duodenostomy and esophago-jejunostomy by the statement of Finney—that the mortality in esophago-duodenostomy is 58% against 42% for esophago-jejunos-

tomy. I also well remember reading a discussion on total gastrectomy by D. C. Balfour of the Surgical Division of the Mayo Clinic, in which he said "The most important single point in securing safe anastomosis is that the first suture line between the esophagus and the jejunum be placed before the stomach is removed."

One of the rare complications that may occur following total gastrectomy is duodenal fistula. In the exhaustive account by Finney and Rienhoff only one case is reported with duodenal fistula. The case was operated on by Goldschwend and Bremer in 1909 in Germany, an esophagojejunostomy was performed; patient died in two weeks.

Fig. 2. Section showing carcinomatous infiltration of stomach wall.

Fig. 3. X-ray showing compensatory dilatation of jejunum six months following operation.

The case I am presenting now developed a duodenal fistula on the eighth post-operative day and drained for about five weeks. It finally subsided and healed satisfactorily, no drainage having appeared since.

I wish to thank Dr. Movius and Dr. Posey (interns) and Miss Quinn, Miss McClaren, Miss Harkley, Miss Kloak, Miss Regner and Miss Phillips for their assistance in the operating room.

307 North Michigan Boulevard.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

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This subject is of great clinical value for two important reasons. *First,* because we should regard patients with advanced pulmonary tuberculosis as neglected cases, the diagnosis in the earliest stages being of paramount importance in the treatment of this disease; *secondly,* because the favorable outlook in the management of pulmonary tuberculosis is in direct proportion to the incipiency of the stage at which treatment is commenced. In all treatises on the subject, attention has been focused upon the study of physical signs, x-ray and other laboratory findings. Although these are of importance, in the earliest stages of tuberculosis, very few of these signs are present. In order to diagnose tuberculosis at the earliest possible stage, recognition of the etiologic factors and subjective symptoms is essential.

I will, therefore, speak of this in more detail. A thorough knowledge of etiologic factors and pathogenesis of tuberculosis is of importance in studying the background of each patient. The principal ones are, recognition of the ubiquity of the tubercle bacillus, the infectiousness of bovine bacilli and the channels of infection by contact, ingestion, inhalation and droplets. An appreciation of the epidemiology of tuberculosis and frequency of infection as is shown by statistical studies, tuberculin reactions and autopsy statistics, throws light upon the widespread occurrence of tuberculous infection.

In the evolution of tuberculous disease from infection, many predisposing factors are to be considered. Prominent among these are, inten-

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sity of infection, heredity, disturbance of metabolism, anatomical peculiarities, occupation, working conditions, living conditions, habits, mode of life and social and economic status. All of these factors determine the *peculiar human soil* in which the *tubercle bacillus thrives.*

Tuberculous infection is now recognized to be almost universal at the age of maturity. The tuberculous disease which we recognize as clinical tuberculosis is now considered the manifestation of immunity, and caused by the temporary failure of this immunity. This failure of immunity is especially common in young adults between the ages of 15 and 25, when, due to the *increased physical and developmental strain,* symptoms frequently develop. These symptoms manifest themselves as general malaise, weakness, loss in weight, anorexia, slight temperature, pleurisy, protracted colds and hemoptysis. Frequent colds and grippal infections of insidious onset are especially important as the earliest manifestations of tuberculosis. These colds when carefully studied, however, differ from the usual grippal infections in their lack of symptoms of nasal and upper respiratory disease. The onset is very insidious and the course protracted, the cough often lasting several months. When studied carefully, patients presenting one or more of the above symptoms under the circumstances mentioned, also show certain physical signs which aid us in the diagnosis.

In examining the chest during the very early stages, inspection and palpation will elicit no changes. Percussion will show impaired resonance and retraction in one of the apices. On auscultation over this area, the most constant and most important early sign is the prolongation of the expiratory phase of the respiratory murmur. Although widespread rales are of no importance in the diagnosis of early pulmonary tuberculosis, the presence of a small number of localized rales over the suspected area is of great importance. These rales are frequently absent during ordinary auscultation and present only when provoked by cough. These provocative rales can best be brought out by patients gently coughing at the end of the expiratory act. When these rales are present constantly, over the localized suspected area, in the patient suspected of tuberculosis because of the previously mentioned symptoms, they are almost pathognomic of active pulmonary tuberculosis and rank next to the finding of tubercle bacilli in the sputum in diagnostic value. A localized increase of whispered vocal resonance, is also of much value. This is especially important because tubercle bacilli are usually absent in the sputum at this stage.

The use of the x-ray, although of great importance in the diagnosis and differential diagnosis of pulmonary pathology, is of little value during very early stages of pulmonary tuberculosis, as the pulmonary infiltrative process which constitutes the pathology of these cases, do not cause definite x-ray shadows.

Let me say that more careful attention to the *subjective complaints and physical background* including past illnesses, family history and all other etiologic factors of the patient is necessary to enable one to make a diagnosis of tuberculosis at the earliest possible time.

A careful investigation of the physical background implies a careful study of all the etiologic factors predisposing to tuberculous infection and to the development of disease. The presence of these in a patient with suspicious symptoms requires careful watching of such an individual over long periods of time for the development of positive evidence or until all suspicious signs or symptoms shall have completely disappeared. It should be recognized that at this very early stage a *definite diagnosis is impossible.*

For the correct treatment of this most important group of patients from which are recruited a large number of the advanced cases of the future, it is necessary to recognize a *suspect stage* of tuberculosis in addition to the generally recognized, incipient, moderately advanced, and far advanced groups.

The general acceptance of this diagnosis of *suspect tuberculosis* as a good clinical diagnosis will do much in promoting early diagnosis and instituting correct early treatment. The treatment at this stage may be very simple, need not seriously inconvenience the patient or family and need not stigmatize him with being consumptive. It may only require a short period of rest, or change of conditions, or character of employment, improvement of diet, or correction of habits.

During the past 25 years of teaching and practice when I have so classified my cases, most of

these patients never advanced to a positive diagnosis; those that did had the therapeutic benefits of an early diagnosis.

This method of management will not bring much dramatic appreciation on the part of the patients or liberal pecuniary rewards; but it *will* give one the satisfaction that he is doing constructive humanitarian work, and, in practice and teaching, is making a real contribution to the prevention and treatment of pulmonary tuberculosis.

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FIVE YEAR FOLLOW-UP REPORT OF AN INFANT WELFARE CLINIC

With Special Reference to Dental Caries

GEORGE F. MUNNS, M. D.

WINNETKA, ILL.

August, 1932, marked the fifth year the municipal Winnetka Infant Welfare Clinic had been in existence. At this time it was decided to *hold a "round up" of children over two years of age who had attended the clinic.* The age limit for regular attendance is two years. During this five year period our total registration had been two hundred and fifty-seven (257) children. Of this number sixty-one (61) children were under two years of age at the time of the "round up" *hence they are not included in this report.* The clinic is held once a week, the average attendance being about eight to ten babies. We request the mothers to bring their babies at least once a month. They are welcome to come as often as they please. Many of them come twice each month, a few three times. It is apparent that the clinic is small, hence this report has the disadvantage of having comparatively few cases but the important advantage of the closer contact, better acquaintance and probably of closer and more accurate supervision and observation made possible by a smaller group at the same time following methods commonly prescribed in larger clinics. All of the children are from families in the lower income group of the community. Few or none of them would have regular pediatric care if it were not provided by the clinic. It is interesting to note in view of present-day controversies concerning medical economics, that although the clinic is open to any resident in the city, the attendance has been almost without exception from the aforementioned income group.

Winnetka (Illinois) is a north short suburb of Chicago. Population 12,00z.

The purpose of the clinic is not different from that of most infant welfare clinics. We endeavor to educate the mothers in the proper care and feeding of the infant and young child, and to see that this knowledge is properly used for the child's welfare. The physician is assisted by two health department nurses who also act as school nurses for the city. We treat no illness, any child needing care for an illness is immediately referred to his family physician. We attempt to maintain a feeling of friendly co-operation with the mothers and carefully avoid all show of authority. We desire to foster as much as possible the closer relation of physician and *private patient rather than the undesirable* "clinic to case" attitude. We have not confined the work to the care of the physical condition alone. Our routine instructions are devised to avoid many of the more common "behavior problems" such as bed-wetting, tantrums and food refusal. The mothers are requested to bring to *our attention any behavior difficulty as soon as* it appears. I believe we have "headed off" by this method many potentially serious behavior problems. The more detailed report on appetite, given later, bears out this impression.

Only forty-five children over two years of age who had been in attendance in the clinic *up to the age of two years came to the "round up."* We had hoped for a larger number, but the economic difficulties of the times had caused many of our families to move to other localities.

Forty-five children is a comparatively small number from which to draw conclusions. However, on checking our findings several factors seemed important enough to warrant the writing of this report. Most important of these was the *very apparent good physical condition of all of* these children. No serious physical defect was found among them and on that score alone we felt that the work had been worth while. I cannot help but mention here the deep feeling of satisfaction that all of us felt as these children gathered, ready for examination and one by one passed before us. The opportunity of having forty-five children, whose physical development you had closely supervised during their first two years of life, their ages now ranging from two

to six years, all congregated at one time for a check-up examination is a somewhat unusual experience.

Method of Examination. Owing to the fact that one physician had to see each child during the course of one afternoon and in order to avoid making the "round up" too tedious an affair for all concerned it was decided not to have a detailed physical examination, but rather to concentrate on certain points which would be of greatest importance in the reflection of results of prescribed care.

Height and weight were recorded routinely and as that was being done three questions were asked of the mother. 1. Whether the child had been immunized to diphtheria and smallpox? 2. Whether the child had had a severe illness? 3. Whether the appetite was good, bad or indifferent? Next there was an examination of the teeth and mouths by competent dentists. These men recorded the incidence of carious teeth and malocclusions. Finally the child came to the physician for general examination. Here we considered in particular, general appearance and condition, evidence of deformity, rachitic or otherwise and the condition of the heart and lungs. The mouth and teeth were again checked and the mother again questioned concerning the occurrence of serious illness and whether the appetite was good, bad or indifferent.

Height and Weight Figures. Average height and weight statistics leave much to be desired in expressing a true picture of the nutritional state, but they do form a rather important background for our estimation of growth and nutritional progress. In order to spare the reader the rather tiresome perusal of separate figures for each child I shall list the comparative weights and heights according to age groups for male and female. Of the entire group there was only one child who might have been called underweight according to standard statistics. This girl was six and one-half years of age. She first came to the clinic at the age of about one and one-half years and has always been a slim esthetic type of build with small appetite, but has had general good health.

The nutritional state of these children could be generally classified as good. A short description of our diet and feeding instructions might be pertinent at this point. Concisely they were those commonly used in most pediatric practice today. We have no special or unusual feeding theories or foods to praise. Breast feeding was encouraged and in the instances where possible continued until the baby was ten months of age. Complemental and supplemental bottle feedings were given when necessary, and were limited to either whole cow's milk or evaporated milk formulas. Dextrin maltose, cane sugar or corn syrup were used for the additional carbohydrate. There were comparatively few mothers who were always able to supply an adequate amount of breast milk. At first we limited formulas to calculated amounts, but now prescribe what we are sure is enough and let the baby have what he wants of it. We have always kept the added carbohydrate at a comparatively low proportion, feeling that milk which is too sweet often may be one cause for refusal of less sweet foods when we desire to add them to the diet. Checking back on the charts of the older children I find that today in common with present day pediatric practice we begin spoon feedings of cereal and vegetables much earlier than we did with those children. At that time, spoon feedings of cereal were not begun until sometime in the fourth month and in several instances not until the fifth month, although cereal in the form of barley flour was given in the formula by the end of the second month. We now offer spoon feedings of cereal at three months and usually they are taken without difficulty. Vegetables were not offered until the sixth month as a rule; now we offer them shortly after the baby takes the spoon feeding of cereal well. Egg yolk or other foods such as cooked and raw fruits were never offered before the sixth month. At present, egg yolk is frequently offered in the third month, raw fruits

Age	Sex Male / Female	No. of Children	Weight Range Pounds	Weight Average Pounds	Height Range Inches	Average Height Inches	Mis.
2–3	m	4	31 -35	32.4	35.7-37.7	36.8	3 girls under 30 pounds
	f	6	26 -35	30.0	32.2-35.5	34.5	
3–4	m	4	27½-43	36.5	36.0-41.7	39.9	
	f	6	29 -35¼	31.5	35.7-39.7	37.6	
4–5	m	8	33 -45½	38.8	40.0-43.0	41.3	
	f	4	35 -48	40.0	40.7-43.0	41.7	
5–6	m	5	39 -44½	42.3	43.2-45.0	43.9	
	f	5	41 -53¾	46.5	41.5-48.5	44.7	
6–7	m	2	44 -46	45.0	44.0-46.0	45.0	
	f	1	39	39.0	A slim esthetic type since infancy. Appetite small.		

and vegetable shortly after cooked vegetables have become a part of the diet. Then and now, in the tenth month these children were and are receiving a wide variety of foods, including vegetables, meat, fruit, cereal and boiled whole unsweetened milk.

The tendency to give vegetables and other foods at an earlier age is rather general in pediatric practice today and some men offer these foods at an even earlier age than we. So far our observations do not lead us to believe that a matter of one or two months makes much difference in the physical condition of the infant as far as the giving of vegetables is concerned. We do favor as wide a variety of food as early as possible believing that among other reasons it is conducive to better appetite and fewer feeding difficulties at a later age.

At ten months most of the babies are on a three meal schedule. The larger meal is offered in the middle of the day, but all are permitted to have all they want at each meal. Food is offered in coarser form as soon as the baby has several teeth and is able to masticate food fairly efficiently. The baby is encouraged to feed himself at any age he evidences a desire to do so and no food is ever forced.

Cod liver oil and orange juice are prescribed at the first clinic visit and care is taken to see that they are given regularly while the child is under our care. All babies receive a minimum of three teaspoonfuls of a standardized oil and two ounces of orange juice daily. Occasionally, if indicated, the cod liver oil is increased to four or five teaspoonfuls daily and the orange juice to any amount the baby desires if it agrees with him.

General Condition. As one examines numbers of children in private and dispensary practice the general appearance and actions of the child of course come to have an important significance and relation in an estimation of the state of health. Minor defects and abnormalities or even major deformities may occur, any of them per se not inimical to good health but perhaps assigned to great importance unless considered in their relation to the whole child. For instance, one child may have unusually large tonsils. If this child is strong, healthy and vigorous, has good color and is not subject to frequent throat infections or other illnesses in which bad tonsils might play an important etiological role we hesitate to condemn the tonsils for their size alone. As the unclad children in turn passed before us we recorded our impression of their general condition—arbitrarily setting our standards at good, fair and poor.

On checking our records we found that each child had received a grade of "good." Under the circumstances one might say that prejudice and personal interest on the part of the examiner influenced the results. We tried to be as critical as possible and I believe the record is accurate. This was a genuinely healthy group of children.

Heart and Lungs. Heart examination revealed an abnormality in only two children. Both of these children had a systolic murmur, the only abnormal finding. Judging from the children's history and subsequent check-up examinations we believe both of these murmurs to be of the functional type. No child in the group gave a history of having had heart disease since they had passed the age limit of the clinic. According to our records none of them had had such an affliction while under our care. Although most of these children came from the social class in which we expect to find juvenile heart disease more prevalent, they were below the age level at which it is most likely to occur and our findings may be of no significance.

The lung findings were negative in all children examined. One child gave a history of having had several attacks of bronchial asthma.

Rickets. Gross evidence of rickets was found in only one child. This child was four years of age, a boy, weight thirty-four pounds. He had always been irregular in clinic attendance and during his second year received no cod liver oil. This boy also had four carious teeth.

Appetite. One of the early instructions given a mother when she first brings her child to the clinic is "never force the baby to eat when he does not want to eat."[1] We emphasize that in no case shall she ever force her baby or child to eat. We tell them what food to use, assure them that the child will eat all that he needs if he is let alone and urge her to come to us immediately with any problem concerning food or feeding rather than attempt to solve it without assistance.

1. Aldrich, C. Anderson: "Cultivating the Child's Appetite."

These instructions are repeated many times to the mother during the period the baby is attending the clinic.

The result was most satisfactory—the report on appetite without exception was "good." Compared to what one experiences as a rule in private practice this record is rather startling and may indicate that the manner in which food is offered is about as important as the kind of food the child receives.

Illness. All mothers were asked if the child had ever had an illness which in her opinion was serious. All but two reported that there had been no severe illness. Two children had had pneumonia with prompt uncomplicated recovery. One had had a mild scarlet fever. All mothers felt that the general health had been very good.

During this five year period we could learn of only one death in the group of children who had attended the clinic. This death occurred in a two-year-old child following pertussis and bronchopneumonia. During the five year period there were no deaths among the infants under one year who attended the clinic. The death rate under one year for this particular area is about forty per thousand live births, the death rate for the one to two year of age group is 4.5 per thousand.

Immunization to Smallpox and Diphtheria. Thirty-two children had been vaccinated for smallpox. Thirty-six had received toxoid or toxin anti-toxin.

Teeth. In view of the great quantity of recent work concerning the influence of various foods, acids, bacteria and vitamins upon tooth decay, we were particularly interested in the incidence of dental caries and malocclusion among these children. Two competent dentists assisted in this examination.

Age Group Years	Number of Children		Incidence of Caries		Incidence of Malocclusion		Percentage of Caries Total Group	Percentage Caries		Percentage of Malocclusion	
	M	F	M	F	M	F		M	F	M	F
2-3	4	6	0	0	0	0	00.0	00.0	00.0	00.0	00.0
3-4	4	6	1	1	0	1	20.8	25.0	16.6	00.0	16.6
4-5	8	4	6	2	1	2	62.5	75.0	50.0	12.5	50.0
5-6	5	5	5	4	2	2	90.0	100.0	80.0	40.0	40.0
6+	2	1	2	1	1	1	100.0	100.0	100.0	50.0	100.0

We see that dental caries was totally absent among the two to three year group, then gradually increases from 20% in the three to four year group until including all ages under six years the incidence for the entire group is 45%. This figure is considerably influenced by the five to six year group for among them the incidence is 90% Ten of this age group were examined and nine had carious teeth. Twelve children were in the four to five year group and eight of them or 66% had one or more carious teeth. Among twenty children under four years of age in only two instances or 10% was dental decay found.

Only four children had four or more carious teeth—three of these children were over five years of age and two of them had not attended the clinic regularly in their first year. Four children of the total group had four carious teeth; all of these children were past four years of age. Two children had three carious teeth, one of these was over six years of age. Six children had two carious teeth and the youngest child in this group was three years old. The other five were four years or older. Three children, all over four years old had one carious tooth. In none of these children was there extreme caries, and most of the decay was of an early mild type.

The percentage of caries ran slightly higher among the boys.

Malocclusion occurred in 19% of the children, chiefly a mild type. The girls showed this defect more frequently then the boys, 24% among the girls, 14% among the boys.

Evaluation of the significance of the above fiures is somewhat difficult. Figures on the incidence of dental decay among children as young as most of these children were, are difficult to find. D. C. Lyons[2] working with children of pre-school age in England found that 26% of a large group under three years of age had one or more carious teeth and between the ages of four to five years the condition greatly increased. Lyons examined several thousand children in Birmingham, England, ranging in age from eighteen months to five years. He found caries occurring in 2.3% of the children under two years of age, but increasing rapidly to 52.3% at the four to five year age.

Coffin[3] in the United States reported a 51%

2. D. C. Lyons: Dental Problems of the Pre-School Child from the Public Health Standpoint. Jour. Public Health Nursing, 24:267-270, May, 1932.

3. D. C. Lyons: Dental Problems of the Pre-School Child from the Public Health Standpoint. Jour. Public Health Nursing, 24:267-270, May, 1932.

incidence of dental defects in a group of children just about to enter school.

Stoughton et al[4] examined 12,435 children of this country, ages five to nineteen years. The examinations were made in Georgia, Illinois, Missouri and Maryland. He found that at six years 87% of these children had decayed or filled temporary teeth and that 20% of them had one or more permanent teeth decayed, filled or missing.

In the group of children of six to eight years of age 90.2% of the boys had one or more decayed or filled teeth. 89.6% of the girls had decayed or filled teeth. 57% of the boys and 56% of the girls had five or more decayed or filled teeth.

Comparing our figures to these it is quite apparent that the incidence of caries among children of our group under four years of age is low. We had no caries under three years while in Lyons' group it was found in 26% of the cases. As the children approach six years of age we find the incidence of caries in our group to be very close to the figures reported by Stoughton.

It is not our intent here to advance any theory or to support any one theory concerning the cause or care of dental caries nor is it necessary to review the literature on that point for this task has been done efficiently and recently by several competent men among them E. H. Hatton,[5] R. W. Bunting,[6] and R. G. Kesel.[7]

Whether our low incidence of caries under the age of four years is due to pre-natal influences (deciduous teeth are almost completely calcified at birth) or to the type of food and supposedly adequate supply of vitamins these children receive during their first two years of life we make no claim. It would be interesting to examine these children several years after the permanent teeth have erupted for all of these teeth, with the possible exception of the second and third molars, start their growth before the end of the pre-school period and if diet is a factor in dental decay they should be greatly affected by the type of food taken during that time.

We do feel that good teeth are an essential and a usual part of the picture of good health, and that proper food balance plays an important role in both of these things. We are inclined to believe that caries is not the product of one influence alone nor its prevention made possible by the control of one factor alone such as mouth acidity, mouth bacterial flora, adequate vitamin content of food, sugar and other carbohydrates, or roughage content of the food and the relative amount of mastication it requires. It would seem more logical to consider caries as the result of several important factors, possibly the combination of several or all of the above commonly suggested causes and in relation to deciduous teeth there is probably a prenatal influence as well.

In this group of children the incidence of caries was comparatively low among those who had been away from the clinic supervision of diet and care a short time—two years or less, but among the older children tooth decay occurred almost as frequently as it had been reported to occur among other groups of children studied by other workers.

Upon examination of our figures on the incidence of dental caries among this group of children we wondered about the incidence of tooth decay among other groups of children of similar age in the same community, on the average coming from a higher income group. For comparison we examined the teeth of a group of nursery school children their ages ranging from two to five years, and a group of kindergarten children all between five to six years of age. The results of this survey are interesting and will form the basis for a future more detailed study.

NURSERY SCHOOL

25 Children—Age, 2-5 Years

Age	2-3	3-4	4-5	Total
Number of children	3	7	15	25
Number with carious teeth	0	0	1	1

In only one child was dental caries found. This girl had five carious teeth—an incidence of four per cent.

Kindergarten—age five to six years. One hundred and forty children examined.

These children attend kindergarten in three schools in widely separated parts of the city.

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"A" SCHOOL

		Number having carious teeth	Per cent. having caries
Total number children	58	22	37.9
Total number girls	21	6	28.5
Total number boys	37	16	43.2

"B" SCHOOL

		Number having carious teeth	Per cent. having caries
Total number children	42	22	52.3
Total number girls	18	10	55.5
Total number boys	24	12	50.0

"C" SCHOOL

		Number having carious teeth	Per cent. having caries
Total number children	40	10	24.3
Total number girls	18	5	27.7
Total number boys	22	5	22.7

COMBINED SCHOOLS

		Number having carious teeth	Per cent. having caries
Total number children	140	54	38.2
Total number girls	57	21	36.8
Total number boys	83	33	39.7

Comparing the nursery school group with the clinic group of similar age we found the incidence of caries much lower among the nursery school group, amounting to only four per cent. while among the clinic group of twenty-two children between two and five years of age the incidence of caries was 45.4 per cent. Furthermore, there is a significant difference between the figures of our five to six year group and the school five to six year group. Caries being found in nine of ten clinic children or 90% but occurring among only 38.2% of the kindergarten children. Further there is a significant difference in the percentage of caries occurring in the three separate schools. 37.9% in A, 52.3% in the second (B) and 24.3% in the third (C). Examining our school districts we find that the incidence of dental caries varies in direct relation to the economic status of the families comprising that particular school district. Thus in the "C" school district in which the incidence of caries is very low compared to the other two districts there are few if any families who might be classed in the low income group. There are more of this group in the "A" school district and a great many more in the "B" school district where caries is more than one hundred per cent more common than in the "C" district.

Explanation of this wide variation in the figures possibly may be found in the effect of several different influences. Remembering that deciduous teeth are usually completely calcified before birth we wonder about the state of health of the mother during the pre-natal period, her diet, the frequence of her pregnancies, etc. Concerning the child itself we think of the many factors that may play a part in tooth decay according to late theories. We hope to make a more intensive study among this group of school children in the near future and hope to find some reason to explain the varying occurrence of caries in different groups and possibly to discover at least a partial solution of why some children have extensive caries at this age while others are not affected.

COMMENT AND CONCLUSIONS

The results of observation on a group of children ages two to six years most of whom since birth had been under infant welfare clinic supervision are reported.

The report on the incidence of dental caries in this group of children is of particular interest in view of our close supervision of their diet during their first two years of life also because of our intimate knowledge of the economic status of the respective families. Our figures, together with those compiled from the kindergarten group of children seem to indicate that dental caries occurs almost in direct relation to the economic status of the group, caries being more common among the children from lower income groups. However, several children known to be from families of a high income group and who are known to have had regular pediatric care from birth were found to have as extensive or more extensive caries as was found among any of the children from the lowest income group. This fact suggests to us the probable importance of pre-natal influence upon dental caries among pre-school children.

Comparing our figures on the clinic group up to the age of four years with those of other investigators we find the incidence of dental caries comparatively low and this fact possibly indicates that proper food and vitamins during infancy play an important part in the prevention of dental decay in the deciduous teeth.

The good logic of never forcing a baby or child to eat against his will is shown by the complete absence of an "appetite problem" in this group of children. Furthermore, the apparent absence of any form of serious behavior prob-

lem among these children indicates that an attempt by any individual or clinic to cooperate with the mother in solving incipient or early behavior difficulties can be successful.

In general, the physical status of this group of children indicates that modern pediatric knowledge as applied to groups of children under free clinic care produces satisfactory results, as evidenced by the uniform good health, low incidence of serious illness, low mortality and absence of significant or serious physical defects among them.

RHEUMATIC DISEASES AND SORE THROAT WITH REFERENCE TO HEMOLYTIC STREPTOCOCCI

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In studies of the bacterial causes of sore throat the hemolytic streptococci appear to be outstanding etiologic agents. Diphtheria bacilli, the pneumococci and other microorganisms cause angina but the most frequent bacteriologic findings in acute throat infections are the hemolytic streptococci. Acute follicular tonsillitis and the more intense form, referred to as septic sore throat, many acute upper respiratory infections, some resembling influenza, yield in cultures made at the onset predominating or pure numbers of hemolytic streptococci. Aside from "colds" the infections with the streptococci are to be considered the most common acute infectious condition. The throat infections associated with a characteristic rash are grouped as the distinct clinical entity, scarlet fever, and bacteriologic evidence points strongly to hemolytic streptococci as the cause of the sore throat and the specific toxin as the cause of the skin rash. The great frequency of scarlet fever in young children and the associated complications that may lead to fatalities have stamped this disease as an important one in public health work and preventive medicine. Experience with sore throat due to hemolytic streptococci without scarlet rash has demonstrated that in similar age groups tonsillitis may be as serious as scarlet fever, particularly in the tendency to complications and sequellae.

Patients with tonsillitis are often bedridden for one or more weeks and frequently develop cervical adenitis, acute otitis media, mastoiditis, peritonsillar abscess, all of which prolong illness and occasionally lead to an unfavorable outcome. As a rule streptococcus tonsillitis is a mild disease but at times, like scarlet fever, the infection may assume marked virulence of serious character. The importance of the throat infections due to hemolytic streptococci is further emphasized in a consideration of the possible sequellae. Public health interest in sporadic or epidemic tonsillitis or sore throat lags because the condition seldom leads to immediate fatalities and not until discovered in epidemic severe form where milk may be suspected is control attempted. Occurring largely in young adults and children the disease leaves its mark in complications of heart, joint, and kidney that resemble and cannot be differentiated from the rheumatic states. Indeed 50% or more of rheumatic patients will give a history of an antecedent sore throat or upper respiratory infections. As will be pointed out later our findings have led us to believe that the hemolytic streptococci of the original infection persists in the throat of patients who develop rheumatic complications. It would appear that the control of sore throat and a considerable proportion of rheumatic diseases may depend on the control of hemolytic streptococcus infections. More studies of the mode of infection and spread by these organisms in sporadic infections and mild epidemics are necessary.

In both scarlet fever and streptococcus sore throat practically all patients survive the initial symptoms at the onset and the succeeding few days. From this primary stage excepting for occasional adenitis and otitis media, the patient as a rule recovers. While convalescing during the second, third or even fourth week from the onset, in some patients fortunately few, a recrudescence of fever, soreness in throat may occur that may be associated with polyarthritis, endocarditis, glomerulonephritis, or erythema nodosum. The arthritis and endocarditis usually is the type that is referred to as rheumatic and only exceptionally may be of the septic type. This recrudescent stage may be referred as the secondary acute. The interval of two weeks or more suggests an

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allergic phase of the streptococcus infectious state. In some instances joint pains may persist after the acute symptoms subside and in such instances a chronic state of infection prevails. In both the secondary acute and in the chronic conditions examination of the throat will reveal enlarged, congested tonsils or enlarged red lymphoid tissue in the pharynx when tonsils are out, indicating that the infection is still active. A culture from such throats will yield considerable numbers of hemolytic streptococci.

In our studies of sore throat due to the encapsulated streptococci we were able to follow throat cultures in the various stages. In the secondary acute stage the streptococci could be demonstrated in predominating numbers or in pure culture, often at the onset of the polyarthritis.[1] Our conception of the rheumatic complications and sequellae in these stages is that of persistent infection of the original sore throat streptococci affecting joints, endocardium or skin that react in a peculiar characteristic manner similar to that termed rheumatic.

At this point it may be well to consider further the relationship of rheumatic conditions to throat infections. By no means should it be assumed that all so-called rheumatic arthritis, endocarditis, chorea, etc., always follow sore throat of hemolytic streptococcus origin. Probably in a great or greater proportion other streptococci of the non-hemolytic type or perhaps other agents may be the cause. But a sufficient number of cases are associated with hemolytic streptococci that any future study of the prevention and control of rheumatic diseases must include sore throat prevention. This relationship was emphasized in past studies of focal infection when hemolytic streptococci were found in patients with chronic rheumatic articular, renal and cardiac lesions in connection with bacteriologic examination of tonsils which often harbored pure numbers of these organisms.[2]

In more recent studies of sore throat[3] we noted the persistence of hemolytic streptococci in patients that developed arthritis, endocarditis, glomerulonephritis, erythema nodosum, etc. As a rule the hemolytic streptococci cannot be demonstrated in the blood or in the joints. One must assume, therefore, that either another cause is responsible or that the toxins or minute members of the streptococci localize in hypersensitive tissues of joints, endocardium, kidney or skin. There is strong evidence that such allergy to streptococci or their products leads to rheumatic lesions. The rheumatic complications as a rule, occur 2 to 5 weeks after the initial sore throat, an interval during which hypersensitiveness to streptococci may develop. In our own experience rheumatic persons will react by exacerbation of joint pains from subcutaneous or intracutaneous injections of streptococcus toxin, or minute numbers of killed hemolytic streptococci. We have also observed that the hemolytic streptococci often disappear from the throat simultaneously with the improvement of the arthritis. A fresh or new infection with hemolytic streptococci in the same person often leads to a recurrence of the rheumatic symptoms. Patients whose tonsils remain large and red often complain of chronic pains in joints (arthralgia). Throat cultures yield frequently hemolytic streptococcus from such persons who can be considered carriers of dangerous streptococci.[4] Upon surgical removal of such tonsils these rheumatic pains disappear. Often the culture made deep from the tonsillar crypts will yield pure cultures of hemolytic streptococci. After such removal the hemolytic streptococci disappear in 1 to 20 days. Persons without tonsils are not necessarily immune from rheumatic disease or from streptococcus infections. Indeed the incidence of various rheumatic disease in children or adults does not differ greatly in those with and those without tonsils. Sore throat may be less frequent but colds and upper respiratory infection seem to be quite prevalent in tonsillectomized persons. We have observed "grippe" like infection with fever and marked prostration in persons devoid of tonsils, whose pharynx yielded pure culture of hemolytic streptococci at the onset of the infection. Milder cases of similar character may be ambulatory and a great factor in the spread of sore throat. Such persons are likewise subject to rheumatic complications but are more apt to make complete recovery from acute polyarthritis and seldom become carriers because of the lack of the establishment of foci in the absence of deep crypts as that of the faucial tonsils.

At this point it would be well to consider the transmission of hemolytic streptococci as it occurs in the ordinary sporadic sore throat. In many instances we have observed the infection spreads to other members of the household when

one person is first affected with follicular tonsillitis. In orphan homes, and in hospital wards as many as 10% may become ill with sore throat when the infection is introduced by a new arrival or develops in one of the inhabitants. In some persons a latent rheumatic state may be activated and lead to serious outcome. These dangers are particularly emphasized as there appears to be a tendency in some institutions to place patients with rheumatic heart disease and arthritis in the same wards or in convalescence homes. Already reports are coming in of the serious recurrences particularly in children, of rheumatic disease in several patients in such homes during or following outbreaks of sore throat or acute upper respiratory infection.[5,6] It would appear advisable to prevent rheumatic persons from exposure to any person afflicted with even ordinary or very mild cases of sore throat, as it may lead to fatal exacerbation of heart involvement if the streptococcus infection is transmitted to the rheumatic patient.

Evidence is being produced that epidemic sore throat and upper respiratory infections are followed by increase in the incidence of rheumatic diseases, particularly acute polyarticular rheumatism. In a epidemic described by Glover[7] he noted the distinct appearance of rheumatism about two weeks after the sore throat epidemic. In milk-borne epidemic septic sore throat, arthritis and endocarditis were noted as complications and sequellae by Davis[8] and Capps[9] in their descriptions of the Chicago epidemic. The complications were described as resembling and as indistinguishable from rheumatic types.

The hemolytic streptococci referred to constitute a group referred to as the Beta type of Smith and Brown. Strains isolated from acute sore throat vary in their appearance. Ordinary small colonies with clear zones of hemolysis constitute the majority of the strains. In about 10% of sporadic cases the streptococci on ascites blood agar form large mucoid colonies of streptococci, which reveal capsules.[10] These strains are referred to as S. epidemicus isolated in connection with milk-borne epidemic sore throat. The moist encapsulated streptococci are rarely found in routine cultures of persons (less than 1%),[4] whereas the ordinary type of Beta hemolytic streptococci may be present in 60% or more.[11] This common occurrence of hemolytic streptococcus in the throat has been the source of confusion in relating the hemolytic streptococci to complicating arthritis and endocarditis. In connection with the S. epidemicus the relationship is more clear. We have observed pure numbers of S. epidemicus at the time of acute polyarthritis and their subsequent disappearance simultaneous with the improvement of the arthritis. Carriers of S. epidemicus are often subject to joint pains and upon the removal of tonsils the carrier state is terminated and at the same time the arthritic pains often disappear.

While S. epidemicus apparently is responsible for sporadic form of acute tonsillitis or sore throat only in about 10% of cases of tonsillitis under certain circumstances these streptococci lead to epidemic sore throat of large proportion. Most unique in epidemic diseases is the transmission of septic sore throat, epidemic tonsillitis and scarlet fever through the milk of the lactating udder shedding the responsible hemolytic streptococci. Epidemiologic and experimental studies point clearly to infection of the udder by streptococci from human sources. The mastitis may be persistent for many weeks during which time the milk may contain large numbers of hemolytic streptococci. This unique mode of transmission of disease is dependent constantly on a peculiar characteristic of the responsible streptococci which in all such instances proved to be encapsulated streptococci forming characteristic mucoid colonies, the only properties which for descriptive and classification purposes characterize the S. epidemicus. Strains of streptococcus from milk-borne epidemics from Chicago, Lee, Baltimore, Portland, Baraboo, Westerlo and Kingston, N. Y., Kirkland Lake, Canada, both from human throats and cow's udder have strikingly and constantly revealed the characteristic large, moist, mucoid colonies on ascites blood agar and capsules in India ink. From the epidemiologic point of view the recognition of the S. epidemicus is of the utmost importance in the control of epidemic sore throat and deserves special consideration.

Until recently the distribution of the S. epidemicus was noted only in connection with milk-borne epidemic septic sore throat. Active cases, the responsible milk, and the infected udder yielded these streptococci. Occasionally a worker about the dairy harbored the organism and was regarded as a carrier. We have pointed

out that the capsulated mucoid streptococci are more widespread. In humans the carriers in routine cultures constitute about 1%, extirpated tonsils from patients with pathologic tonsils, 12%. Sporadic septic sore throat unrelated to milk in 10% of cases of streptococcus sore throat are due to S. epidemicus. In the throat and exudates of scarlet fever patients we have noted[12] as have others[13] recently capsulated streptococci resembling S. epidemicus but which still yield the specific toxin of scarlet fever streptococci. In erysipelas similarly an occasional strain isolated is encapsulated and their relationship to S. epidemicus of septic sore throat remained to be determined. The situation with reference to S. epidemicus of bovine origin has become also more complicated. In addition to isolating these streptococci during epidemics, cultures among herds during quiescent periods with no epidemic of sore throat, will occasionally yield capsulated streptococci from udder.[14,15] These streptococci from mastitis unassociated with sore throat appear to be alike in most characteristics to S. epidemicus in their low acid production, inability to hydrolyse sodium hippurate, but Edwards believes differ from human strains by the ability of the udder strains to ferment sorbital and failure to ferment trehalose.[15]

In a study of the S. epidemicus with its peculiar, unique epidemiology may be found the fundamental basis for the behavior of the streptococci and other organisms in the genesis of epidemic or pandemic infection. There is some evidence that capsule and mucoid property may appear under certain conditions among some streptococci of the ordinary Beta type. 50% of strains on passage through mice assumed larger, moister colonies and often distinct capsules.[1] In serum broth Brown & Kindwell[17] observed similar changes. However, in other experiments two strains on 26 successive passages remained unchanged although the virulence was markedly increased.[1] The recent work of Robinson and McComb [18] similarly demonstrated that an ordinary Beta type of hemolytic streptococcus inoculated into udder of cow did not assume the appearance of S. epidemicus after 4 months of mastitis. It would appear, therefore, that some strains of hemolytic streptococci are subject of variations while others remain fixed and unchanged.

The streptococcal diseases vary in their frequency in different regions of the United States and the different countries of the world. Unfortunately statistics on incidence of septic sore throat and rheumatic diseases are very meagre. However, the figures available on scarlet fever and erysipelas reveal that particularly scarlet fever is a rare condition in southern states, in the warmer or tropical regions and the very cold countries. The differences in erysipelas are not as striking. Little data on the distribution of the hemolytic streptococci in these various sections of the world is available. Coburn[19] noted the disappearance of hemolytic streptococci in the throat of rheumatic patients when sent to Porto Rico, simultaneously with improvement of the rheumatic condition, which recurred when the patients returned to New York and again revealed hemolytic streptococci in their throats. He stressed the relationship of the incidence of hemolytic streptococci in the throats of rheumatic patients and emphasized these organisms as important factors in the manifestations of rheumatic lesions. Like scarlet fever and perhaps sore throat, rheumatic fever in available statistics[20] is rare in the tropics and less common in the warmer sections of the mid-temperate zone than in the colder regions. Warm, dry sections apparently are unfavorable for hemolytic streptococci in throat as well as inhibitory to the development of rheumatic fever. Damp and cold weather is emphasized and noted especially in Great Britain as favorable for the development of sore throat and rheumatic arthritis[21] and accounts for the variations in the seasonal incidence.

A distinct increase of acute rheumatic infections was noted to appear by Glover[7] who described epidemics of tonsillitis and rheumatic fever where the peak of the tonsillitis epidemic was followed in about two weeks by peak of rheumatic fever incidence. Among 3,530 boys, 427 developed acute sore throat, of which 41 subsequently came down with rheumatic fever. A similar wave of rheumatism following tonsillitis due to hemolytic streptococci was also noted by Bradley, among public school children, one wave appearing in November, another in March.[22] In connection with milk-borne epidemics of septic sore throat the spring and fall appear to be the most favorable seasons for outbreaks.

More studies on the geographical and seasonal variation of hemolytic streptococci in throat are

needed as well as statistics on sore throat and rheumatic fever in relation to these organisms. The popularity of certain sections of the country or the world for rheumatic diseases may be due to climatic conditions unfavorable for the persistence of the responsible streptococci in the throat.[9]

Summary: Hemolytic streptococci in addition to scarlet fever, septic sore throat, may be important factors in a considerable proportion of rheumatic diseases.

Both sporadic and epidemic sore throat or tonsillitis may be followed by increase in acute rheumatic diseases. The control of rheumatic diseases must include the prevention of sore throat by hemolytic streptococci.

In connection with the S. epidemicus, a variety of hemolytic streptococci, sore throat due to these streptococci may be complicated by polyarthritis, endocarditis, apparently of rheumatic character. The rheumatic complications appear to be associated with the persistence of S. epidemicus in the throat.

Climatic conditions seem to be important factors in the incidence of sore throat and rheumatic diseases.

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A CASE OF FRIEDLANDER'S BACILLUS MENINGITIS SECONDARY TO BILATERAL ACUTE OTITIS MEDIA

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This case is being presented because the etiological agent, Friedlander's bacillus (B. mucosus capsulatus), uncommonly causes meningitis, and because it illustrates the slow progress of such infections, the resistance to treatment, and the tendency toward serious complications.

Acute meningitis due to Friedlander's bacillus has been reported at intervals.[1 2 3 4 5] It frequently occurs as a terminal complication of acute otitis media and mastoiditis,[1 7 8] but may also follow influenza.[9] In a review of the literature to 1930,[6] out of 12 reported cases, 3 recovered but due to the inaccuracy of the bacteriological diagnosis, it is doubtful if the recovered cases were actually due to Friedlander's bacillus.[10] One case of recovery following this type of meningitis has been reported in which the etiological agent was definitely proven to be a member of the Friedlander group.[10] The insidiousness of invasion and obscurity of symptoms seems to be rather characteristic of disease caused by capsulated bacilli of this group.[7 8 11] In a review of the literature to 1931,[10] it would seem that once this pathological condition has been diagnosed, a fatal termination should be expected.

Case Report. The patient, Mrs. G., aged 63 years, had an attack of what was probably influenza in December, 1931, (judging from her history of the ailment), but did not seek medical attention at this time. During the first week of January, 1932, she noticed an exaggeration of the deafness she already possessed which became steadily worse. About the third week in January, she began having rather severe pains behind both ears and especially over the right temporal and frontal regions. At this time I was called to attend her. Physical examination revealed nothing pathological but because of her discomfort, she was advised to consult an otolaryngologist which she did.

From this time until May 5, 1932, Mrs. G. remained under the care of the otolaryngologist. During this period she developed an acute otitis media, first on the left side and subsequently on the right side; in both cases, drainage was established with difficulty, coming on slowly, and being profuse and mucoid in character.

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During this period the patient seemed improved at times only to relapse again, particularly in regard to the pain which persisted especially on the right side. I was required to make frequent visits to her, primarily for the purpose of making her comfortable in regard to the pain. An x-ray of both mastoid areas was taken in the middle of April and showed nothing abnormal. On May 5, another x-ray was taken and at this time the otolaryngologist made a diagnosis of acute mastoiditis on the right side and advised immediate surgery. The patient was taken to the Washington Boulevard Hospital for this purpose.

Approximately seven days after the mastoidectomy, the patient developed a tumefaction below the mastoid incision on the right side which followed the posterior border of the sternomastoid muscle. A diagnosis of abscess formation was made and counter-drainage was established from the mastoid incision to the most dependent part of the abscess. A large amount of thick mucoid pus was evacuated. After a three weeks stay in the hospital, the patient was sent home with the mastoid area healed, but still draining from the cervical abscess. From this time until the day of her demise her course was one of a decidedly stormy nature. The abscess would seemingly clear up at times only to start draining again. Twice there was an extension of the abscess posteriorly requiring counter drainage under local anesthesia. Cultures made from the evacuated pus at this time, showed a growth of Staphylococcus aureus and Friendlander's bacillus. Sever chills were frequent, sometimes lasting as long as ten to fifteen minutes, and associated with rises in temperature as high as 103 to 104 degrees. Headache over the right temporal and frontal region was rather constant although there were times when she felt fairly comfortable in this respect. On two occasions consultation was obtained which yielded no additional information other than a septicemia with the primary focus in the cervical region. General palliative measures were advised. Among the various procedures a vaccine was given. After the fifth injection, a tumefaction developed on the left arm at the site of inoculation which became fluctuant and was incised under local anesthesia yielding thick mucoid pus of the same appearance as that issuing from the neck and substantiating the opinion of a septicemia.

On August 5, 1932, the patient began evidencing mental symptoms and began to vomit. Removal to a hospital was advised and finally on August 8, 1932, she was removed to Wesley Memorial Hospital. An x-ray of the mastoid areas was repeated and the report of the Roentgenologist was as follows: "There is no evidence of cell structure in the right mastoid region. A somewhat round area of increased transparency suggests previous surgical removal of a portion of the mastoid cells. There is no evidence of abscess of the bone in this region. The left mastoid cells appear of slight increased density. The cellular structure appears hazy and indefinite." Blood count showed R. B. C. 3,500,000, H. B. 50%, W. B. C. 22,200.

A consultation advised exploration of the neck. This was preformed under gas anesthesia. A cavity posterior to the sternomastoid muscle, about two inches wide and three inches long extending to the tip of the mastoid bone, was found. Exploration of the mastoid showed no pathology and perfect healing. In spite of all palliative measures the patient's condition became steadily worse and finally death occurred on August 12, 1932. At no time were any pathological reflexes elicited, and both pupils were equal and reacted normally. Immediately after death the left pupil became more dilated than the right. A postmortem examination was made and the important pathological diagnoses are given below.

Pathological Diagnosis.

1. Acute purulent leptomeningitis.
2. Bilateral thrombosis of the transverse superior petrosal and cavernous sinuses of the dura.
3. Recent right mastoid exploration and surgical drainage of abscess in right posterior triangle of the neck.
4. Pneumonia (early gray hepatization) involving left lower and lower part of left upper lobes.

Bacteriological Report.

1. Morphology and cultural characteristics.
   Gram negative bacillus.
   Non-motile.
   Capsulated.
   Broth—Turbid, sediment at bottom, slight scum at top.
   Mucoid growth on solid media.
   Acid and gas in maltose, mannite, dextrose and lactose.
   No acid or gas in saccharose.
   Indol not formed.
   Nitrates reduced.
2. Bacteriological Diagnosis.
   Friedlander's bacillus.

Summary.

1. This is a rather unusual case of acute meningitis due to Friendlander's bacillus.
2. The predisposing causes were: Influenza, bilateral acute otitis media, and abscess of the right posterior triangle of the neck, occurring in the order named.
3. The causative organism from the time of the onset of the influenza until the demise of the patient was undoubtedly Friedlander's bacillus.
4. Infections due to Friedlander's bacillus are of long duration, resistant to treatment and have a tendency toward severe complications.
5. In the development of meningitis, the invasion is slow and the symptoms obscure.

6. The prognosis of cases of acute otitis media where the causative agent is found to be Friedlander's bacillus, should be guarded.

I wish to thank Dr. Diekman, pathologist, and Ruth Getty, bacteriologist, at Wesley Memorial Hospital, and Elizabeth Keating of the Chicago Medical School for their cooperation in making the presentation of this case possible.

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VISUALIZATION OF THE LIVER AND SPLEEN

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Within the last two years there has been placed at the disposal of the clinician a new diagnostic procedure—that of visualization of the liver and spleen by means of a drug called thorotrast. A brief review of the literature is herewith given.

Thorotrast is a highly dispersed ThO_2 solution containing 25% ThO_2. It is miscible with all body fluids in all proportions without flocculation or other chemical changes. It is a stable, sterile liquid of milky appearance in reflected light, and clear colorless to brownish transparency in transmitted light. Pharmacologically it is non-toxic and with respect to radioactivity it is relatively inert.

The drug was developed and introduced by Dr. Paul Radt of Germany, who used it in intravenous hepatosplenography.

It has an affinity for the reticulo-endothelial system, which is comprised of the liver, spleen, bone-marrow, lymph glands, adrenal tissue, and the hypophysis; this is shown by its storage in the Kupffer cells of the liver and the reticulum cells of the spleen; it is also found in the adrenals and ovaries to lesser extent. There is a sparse distribution in the lungs by means of Kupffer cells being cast off by the liver into the blood stream and thus taken to the lungs. The normal kidney contains no deposits of the drug so the finding of such deposits in the kidneys may be regarded as evidence of pre-existing kidney lesion, according to Dr. Dickinson of the University of Toronto.

Practically 100% of the thorotrast is stored by the body. Repeated urine and feces examinations for several days following administration revealed no elimination, and repeated laboratory examination over the first few weeks following administration revealed practically no elimination. Because of the finding in the hepatic veins of Kupffer cells loaded with thorium, and subsequently of their appearance in the lungs it is supposed that the respiratory system comprises the source of elimination from the liver of the drug. This fact was further substantiated by the finding of thorium-loaded Kupffer cells lying free on the epithelium of the trachea. At the end of three months radiograms showed the liver to produce a shadow of 50% less intensity, while the spleen, bone marrow, and lymph glands remained practically the same. Thus far no explanation has been offered for this, but it would seem that in the case of the liver the thorium is deposited chiefly in the Kupffer cells, whereas in the spleen, bone-marrow, and lymph glands it is deposited most largley in the reticulum of these organs, which, together with the adrenals and ovaries, have as yet given no evidence of elimination.

It may be stated that while no definite evidences of microscopic pathology resulting from the storage of thorium have been reported, several leading pathologists are of the opinion that the storage is more or less permanent, and for that reason prefer to wait longer before giving their final opinion as to its action on the various organs, if any.

With these remarks as a preface, the clinical uses of thorotrast may now be considered. By means of intravenous administration followed by radiograms clear outlines or shadows of the liver and spleen are obtained. The technic consists in a daily intravenous injection of 25 ml. of thorotrast for three successive days to be followed on the fourth day by radiograms. Even smaller amounts may be used if only the outline of the organs rather than detail is desired.

A well outlined liver or spleen, smooth and

homogeneous in density, and normal in size and shape is considered for a working basis as being indicative of a normal organ. Any process which interferes with the storage of the thorium will show as dark areas on the negative; for example, metastatic nodules, cysts, tumors, etc. Hypertrophy and atrophy will be seen as enlargement or diminution in the size of the shadows. One caution in radiographic interpretation is not to confuse superimposed gas shadows for organic pathology.

Generally speaking, indications for the use of thorotrast are those in which circumscribed gross pathologic changes are suspected, such as tumors, cysts, abscesses, gummata, etc. Contraindications to its use are conditions of known far-advanced hepatic or splenic pathology such as cirrhosis, splenomegalia, and other diseases involving the entire organ simultaneously. A specific contraindication is advanced renal pathology in which case thorotrast seems to aggravate conditions and hasten atrophy and degeneration of the glomeruli.

It may be of interest to note that this preparation is useful in pyelographic and cystographic work by direct instillation.

In conclusion it may be said that we have at hand a drug which fulfills a long-felt need in medical work in enabling us to obtain definite pictures of the liver and spleen. It has so far been proven efficient, reliable, and harmless in chosen cases, and though it is not yet completely understood, it would seem that the drug offers many unforeseen research and diagnostic possibilities.

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NON-GONORRHEAL URETHRITIS

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Inflammatory diseases of the urethra and the complicating adnexal inflammations continue to have as high an incidence as previously in spite of the existing economic situation. A definite percentage of patients presenting themselves with the initial complaint of urethral discharge will be of the non-specific or rather, non-gonorrheal type. At first thought it would seem quite a simple task to make the diagnosis but at times all our diagnostic ability is taxed in making the diagnosis of the underlying pathology. It has been our habit to divide these patients into two groups: Group 1, those with an acute profuse creamy discharge with a reddened meatus and burning on urination which at first sight seems to be specific in nature; and Group 2, those patients whose complaint is a chronic gleety type of discharge.

The etiological factors underlying the acute profuse discharge are at times obscure and may never be definitely settled. The factor of prime importance is the determination of the presence or absence of the gonococcus. For this one daily smear is not sufficient. Numerous smears made on several succeeding days may be needed to find them. If they are of typical morphology and intracellular we do not need the Gram stain or culture but if not typical and not intracellular the findings of the methylene blue stain should be checked with the Gram stain and if desirable, with cultures. A careful inquiry into the immediate past of the patient, especially his sex life and indulgence in alcohol, may bring to light sufficient cause for his present predicament. The following case is a good example of this.

Case 1. C. R. A young white male of thirty-seven years, of fine appearance and with a wide female acquaintance, came to the office in February, 1931, with

a typical acute profuse creamy discharge. He admitted in the past almost daily exposures but stated that for two months before his very recent marriage he had abstained from all sexual indulgence. He had been married but two weeks when the above discharge had appeared.

The physical examination was entirely negative except for the profuse discharge and a reddened meatus. Rectal examination was negative except for soft, distended, somewhat tender seminal vesicles. Repeated careful Gram and methylene blue stains of smears from the discharge revealed no organism of any kind. Regulating the sexual life combined with a short course of urethral irrigations with potassium permanganate of 1-10,000 concentration cleared up the condition completely. There has been no recurrence to date.

Other etiological factors include chemical irritation of the urethra by various substances used to prevent gonorrhea after a questionable exposure. A number of patients have been seen who have produced an urethral discharge by using a fifty per cent. solution of lysol as a preventative. Everyone is familiar with the urethritis produced by foreign bodies in the urethra, especially the indwelling catheter.

The great majority of instances of non-gonorrheal urethritis fall into the second group, those presenting a slight, gleety discharge, and it is chiefly in this group that we meet our greatest difficulties in diagnosis. Stained smears of the discharge are to be examined first and it is surprising how many of those mild looking discharges will prove to be gonorrheal in origin. After excluding the possibility of a gonorrheal origin the real task begins. All possibilities must be kept in mind and each one excluded or determined as the underlying factor. Rectal palpation of the prostate and seminal vesicles with examination of the expressed secretion excludes or includes these structures as causative factors. The examination of the expressed secretion is of utmost importance as many apparently normal prostates and vesicles to palpation will show pus in the expressed secretion. Included in the rectal examination is the palpation of Cowper's glands between the forefinger in the rectum and the thumb of the same hand on the perineum. Probably these glands are involved more often than is suspected. Keeping these glands in mind and including them in the rectal examination will increase our knowledge of any inflammatory changes occurring in them. Exploration of the urethra with diagnostic or bulbous bougies for the anterior urethra and with stricture or Van Buren sounds for the prostatic urethra will show us the presence of infiltrations or of actual stricture formation. The external meatus must not be neglected and if it will not admit instruments of full size should be enlarged by performing a simple meatotomy. Any meatus not admitting a Number 26 French scale instrument should be enlarged. An opening sufficient to pass a No. 32 instrument at the time the meatotomy is performed, should be made so that after healing with its slight contraction takes place, a No. 30 instrument passes with ease. Palpation of the penile urethra must not be neglected as a rare case of intraurethral chancre is picked up by feeling the induration along the canal. Obtaining serum from the meatus and examining it under the dark field will reveal the S. pallida. In these obscure cases we must not neglect to examine the urethral discharge and the secretion obtained by prostatic massage for the Trichomonas flagellates as these cases are being recognized more frequently now their occurrence has been demonstrated.

At times when we have gone through all the above procedures and in many cases after prolonged treatment, the discharge persists and the patient becomes dissatisfied. A careful urethroscopic examination is indicated and in them we may discover some urethral pathology which would be missed unless such an examination were made. These changes include posterior urethral granulations, polyps, inflammatory conditions of the verumontanum or utricle, and inflamed crypts or Littré's glands in the anterior urethra.

The treatment, of course, consists of removal of the cause. In the acute type regulation of the sex life with elimination of alcohol combined with a few injections of some mild instillation or mild irrigations is usually sufficient. Forcing fluids to frequently flush the urethra is advisable. Urinary antiseptics may be tried but their use is of questionable value. In those instances caused by foreign bodies or strong chemical injections the removal of the cause is sufficient.

In the chronic or gleety type of discharge meatotomy under local anesthesia with gradual dilatation of stricture, if present, is needed. Hot sitz baths and hot rectal douches combined with regular prostatic and vesicular massage once or twice a week usually is rather rapidly effective.

Mild posterior instillations or irrigations in conjunction with the dilatation and the massage is useful. In these cases the patient must be warned that the condition may require courses of treatment over a long period of time. This is especially important in stricture cases as many are seen where treatment is neglected even after urethrotomy, and patients return with filiform strictures and must undergo long and tedious courses of dilatation. Urethral lesions discovered by the urethroscope can be treated by direct application of strong caustics through the urethroscopic tube to these lesions.

At times even after the most exhaustive treatment a slight discharge, usually in the morning, remains, with a few shreds in the first urine. If these patients are symptomatically free one should be satisfied, as shreds will probably be noticed by the patient for the rest of his life.

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MECHANICAL INJURIES OF THE BRAIN

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In former days it was a custom to talk about fractures of the skull. At the present time the fracture of the skull is regarded only as a concomitant of the more serious brain injury and serious brain injury may occur without any fracture whatever. The title of this paper should have been "Intracranial Injuries" since we must consider injury of the dura, of the vessels and of the brain. Some one has said that no injury of the brain is so serious as to be considered hopeless, nor so slight as to be considered trivial. The most seemingly hopeless cases sometimes recover spontaneously while an insignificant injury may result in death. There can not be very much mechanical injury to the brain without considerable force having been applied to the head. Whether the force be applied directly or indirectly, as through a fall on the buttocks or a blow to the side of the neck (when the force is transmitted through the spine) the immediate consequence is always the same—a sudden shock or shaking of the brain substance. Now it is well known that a sudden shock or blow applied to a nerve trunk, even though it be not strong enough to disintegrate the nervous tissue, yet it immediately and momentarily causes that nervous tissue to cease to function. Momentary though this loss of function may be, still it always exists, and in a degree directly proportionate to the force of the blow. Much more so then is it with the brain itself—a sudden shock applied to it, directly or indirectly, causes it to cease to function in that part where the force of the shock is most felt or, perhaps, in that part where the threshold of stimulus is lowest, wherever it may be. The seat of consciousness is usually most and first affected and its function is more or less interfered with. A train of symptoms is set in motion and to the condition characterized clinically by these symptoms the name "Concussion of the Brain" has been applied. In these later days when the truth of everything that we have ever learned is being called in question, there has been much cavil and discussion as to the appropriateness and even as to the significance of the term. I am reminded of a discussion I once listened to concerning epilepsy. When one of the ardent young seekers after truth demanded of the celebrated Doctor ———— of Chicago just what he meant by epilepsy, the gentleman from Chicago replied that by epilepsy he meant what almost any damn fool meant when *he* talked about epilepsy. So it is with concussion. It means something to almost everyone who hears it and usually it means the same to us all—a condition appearing as a consequence immediately after the application of physical force to the head, directly or indirectly, and characterized by symptoms varying directly in their intensity with the force of the blow struck. When the force is slight, so are the symptoms—a sensation of vertigo, dizziness, flashes of light, loss of consciousness, loss of muscular control. When the force is severe, so also are the symptoms severe, even severe enough to cause immediate death. When consciousness is lost there is immediate loss of voluntary muscular control and an immediate fall in the general blood pressure. The surface of the body becomes pale; the respiration may cease momentarily and the pulse may disappear from the wrist. If the force of the blow has not been too great, the patient presently begins to recover. The center governing circulation is the first to regain its tone just as it is the last to lose it. As the

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force of the heart becomes stronger and the blood is forced about, there should be a corresponding recovery of respiration. This does not always occur. When it does not, the patient becomes cyanosed. Such a patient theoretically should be benefited by the application of artificial respiration and sometimes so he is. As the recovery proceeds, the general blood pressure rises and usually the patient aids this rise by vomiting, and when the concussed patient vomits the physician feels that he is getting better, whereas if loss of sphincteric control is manifested by involuntaries, this is taken as a sign of very, very grave import and of bad prognosis. The depth and duration of the immediate unconsciousness is a direct index of the amount of force applied to the brain and, consequently, an index of the extent of brain injury. The unconsciousness that *succeeds* or *persists* may not be an evidence at all of the extent of the injury, for a patient without any brain injury whatever may become unconscious and even die without regaining consciousness from even a slight injury to an artery or a vein in the membranes.

To be able to make a diagnosis of the extent of the brain injury immediately after its inception, is hardly possible. Conditions may arise which cause the unconsciousness to deepen; the blood pressure to rise; the pulse and respiration to fail. The extravasation of blood or of serum may be great and rapidly produce these symptoms, or, occurring more slowly, the symptoms appear later, but in either case death may ensue.

It is necessary to remember that extravasation of blood or serum or the depression of bone into the cranial box, impinges on the space normally occupied by the brain and by the blood in the vessels thereof. We sometimes think of this cranial box as though it consisted of one compartment only, but there are three compartments and their walls are fairly rigid—two compartments above for the lodgment of the hemispheres, the opening between them filled and blocked by that portion of the brain which holds the two hemispheres together, the corpus callosum, the floor of the third ventricle and the crura cerebri. In the other compartment lodge the cerebellum, pons and medulla and the opening in the tentorium through which this chamber communicates with the upper chambers, in life is filled—and fairly closely—by the midbrain. The fact that there are three compartments should be well borne in mind. It explains how the intracranial tension can be much higher in one than it is in the others. It explains why it is that very much blood may be extravasated above the tentorium and yet no blood appear below it.

But when pressure rises in one chamber the tension in the other chambers will also rise, perhaps not so rapidly nor so high. When intracranial tension rises rapidly, due, for example, to the extravasation of blood, the first structures within the cranium to yield to that pressure are the thin-walled veins in the neighborhood. Their walls are compressed, squeezed together, and this leads to a turgescence in the capillary fields which they drain. Now it has been shown that the irritability of the brain cell varies directly with its blood supply and if the capillary field in the motor area, or a part of it, becomes congested, this is made manifest by hyper-excitability or signs of irritation in the muscles under the control of this area, and twitchings, convulsions, etc., are likely to appear. When such occurs in the sensory area, the symptoms produced vary with the area congested. When the occipital poles are irritated, the patient may have flashes of light, etc. If the frontal area is congested, ideation is increased. The patient becomes talkative, maybe boisterous, finally delirious. Apply the same reasoning to the area governing respiration and vascular control—if about the mucleus of the vagus, then the vagus is more irritable; respiration is deepened; breathing becomes stertorous and the pulse is slowed and becomes full and strong and at the same time the blood pressure begins to rise. If, now, the intracranial tension continues to rise, the next to yield to the pressure will be the capillaries themselves and now, the tissue being deprived of its blood supply, becomes blanched. The signs of irritation give way to those of paralysis. The twitching limb lies still; the muscles become flaccid; the hyperesthetic skin receives the pin prick unnoticed; delirium gives way to coma; and when at last the capillary bed in the neighborhood of the medulla begins to be compressed, the Cheyne-Stokes breathing occurs, followed later by rapid, shallow and irregular breathing. The pulse, too, becomes rapid, the rhythm irregular, the volume

weakens, the blood pressure falls and the patient dies.

Now when we are discussing intracranial injuries, we must give some consideration to the pathology. The pathology cannot always be known with certainty in time to do the patient any good, and in certain conditions, even though it were known, the probability of doing the patient any good is remote indeed.

We will consider injuries to the dura. These practically always accompany skull fracture. The only positive immediate evidence of the injury will be either by direct vision or by the appearance of cerebrospinal fluid coming from the wound, from the ear or from the nose. The tearing of the dura is not in itself a serious matter but when the subdural space communicates with the air, bacteria are likely to gain entrance and meningitis ensue. More particularly is this true if the sinuses, the seat of former or present infections, are opened into, the middle ear, mastoid cells, sphenoidal, ethmoidal or frontal sinuses. Flow of cerebrospinal fluid is conclusive evidence that the dura has been torn; the flow of blood from the ear or from the nose is not.

It sometimes happens that the dura over frontal, ethmoidal and spenoidal sinuses is ruptured without blood extravasation and without escape of cerebro-spinal fluid, the diagnosis of dural rupture being made by the roentgenogram showing air inside the skull—pneumocephalus.

At the same time that the dura in the temporal region is torn, the largest of the meningeal vessels, the middle meningeal artery or one of its branches, may be ruptured. Or this accident can occur without rupture of the dura or even without fracture of the skull. When the dura is ruptured at the same time as the artery, the blood is likely to escape into the subdural space, but in most cases of bleeding from the middle meningeal artery, the dura is not ruptured and so the blood collects between the dura and the bone. As the extravasation proceeds, the dura is stripped away from the bone; the clot accumulates between dura and bone, as I will show you later; the hemisphere is pressed upon; the intracranical tension rises and in response, the blood pressure also rises. By this means, the bleeding is increased, the vicious circle is established and, unless relief be afforded, the patient will very likely soon die. Of all of the forms of intracranial bleeding, this is the only one for which immediate operation is indicated and the only one in which immediate operation has achieved brilliant results.

The clinical story is nearly always the same; namely, a blow to the head, perhaps immediate unconsciousness which, as a rule, is quickly recovered from, and the patient thinks he is quite all right and goes about his affairs. He presently begins to complain of headache, dizziness or blurred vision, and it may be noticed that the lower half of his face is partly paralysed on one side. The paralysis is always on the side opposite to the lesion, regardless of which side has received the blow, because the blow may be struck on one side and the laceration of the vessels take place on the other—injury by contrecoup. As the bleeding proceeds and the clot enlarges, the frontal lobe is more and more pressed upon. The paralysis increases, the headache becomes more severe and the patient may become delirious, but presently he becomes drowsy and soon comatose. It has been said that the pupil of the affected side in brain injury is always the first to dilate. A search of our records reveals that in about 70 to 75% this is true. In many, when the patient is first seen, both pupils are dilated. Sometimes both are contracted. As a localizing sign it is of confirmatory value only.

Bleeding also sometimes occurs from the arteries at the base. The extravasation is more rapid, the symptoms more severe and more rapid in their development and termination. There is very little that can be done for it; there is nothing diagnostic of its presence.

Bleeding may also occur from the cortical veins, particularly those over the cerebral hemispheres. When large veins are broken near where they empty into the longitudinal sinus, the accumulation of blood is subdural and may be widespread. It can occur on both sides at the same time. It usually arrests spontaneously when the tension outside the vein becomes higher than the tension within it. Such a blood clot is even more dangerous than the one lying outside the dura, other things being equal, for even a small subdural clot can result in a very large so-called blood cyst. The occurrence of these cysts isn't always remembered. Their clinical story is generally as clear cut as that of bleeding from the middle meningeal artery. There is a history of injury with perhaps a period of unconscious-

ness which may have lasted for some days. Generally the head injury has been of some severity and the patient is kept in bed for at least a week. He then begins to get up and go about but he soon complains of headache, which grows increasingly severe, dizziness, delirium, attacks of insanity, hemianopsia, paralysis—any of these, depending upon the site of the lesion, may supervene and they grow worse as he keeps going about. Even if he is put to bed, the symptoms, although relieved, recur and their progress is soon noticeable. The treatment consists in opening the dura, evacuating the clot and removing the granulation tissue on the inner surface of the dura. Even this is not always necessary, evacuation alone often sufficing. The contents are chocolate or coffee colored. The cyst increases in size, even though the blood evtravasation has long ceased, due to certain chemical changes or changes in the specific gravity. As these occur, fluid is imbibed into the walls by osmosis and the cyst continues to grow. In such a case, unless relief is afforded, the patient will die. The duration of these cysts is sometimes from several weeks to several years.

And now we will briefly consider haemorrhage into the brain itself. Vessels in the cortex, arteries or veins, may be ruptured by the force of the blow. Blood is extravasated into the brain tissue, more easily into the white matter as this readily splits into layers. This is the case in apoplexy. The hemorrhage may be one large one or multitudes of small ones. How to make the diagnosis I do not know. Some of these patients have lived for weeks, others have died within a few hours. In all those in whom we have confirmed the diagnosis by autopsy, the unconsciousness was profound and continued. Again, hemorrhage occurs into the ventricles from the vessels perhaps in the choroid plexus itself or from vessels in the brain substance nearby. In this latter case, bleeding occurs into the brain substance and later breaks into the ventricle. In most of those cases in which we have proved at autopsy the presence of blood in the ventricles, the patient never recovered from the initial concussion unconsciousness, and usually died within four days. The all showed general spasticity and many of them bilateral Babinski reflex.

A lot has been said about brain contusion and brain laceration. The extent of brain contusion or brain laceration can only be determined by actual visualization of the part; it can only be surmised at by the symptoms. Generally speaking, the slighter the blow, the slighter the laceration. It has been said that the extent of the fracture is an index of the amount of brain injury. Not always. I will show you a picture in which the skull has been actually shattered, as you will see, and yet this patient was scarcely unconscious at all, showed no sign of brain injury and was well enough to leave the hospital in less than two weeks, whereas one of our brightest young men lost his life from laceration without any cranial injury at all.

When brain tissue has been deprived of blood in any way, a certain amount of softening occurs. It may be a mere contusion, it may be a laceration, it may be both. The greater the contusion in the neighborhood of the laceration, the greater the interference with the blood supply and the greater the amount of softening. The softened material becomes foreign body. Also, it is a good culture medium if bacteria happen to reach it. Nature will try to get rid of it by absorbing it or by walling off the part. It is remarkable what large portions of the brain sometimes disappear after an injury, at least certain brains known to have been seriously injured during life have been shown after death to have defects existing at the site of injury. I will show you one such.

Now for a moment let me speak of that still most dreaded foe of all those who treat brain injuries or do brain surgery. I refer to edema of the brain. When a living tissue is injured, it reacts. The reaction is called inflammation and in this process, swelling is produced. Now, when the brain is injured, it is no exception to the rule; it reacts and inflammation ensues but swelling cannot occur, as I said before, within the brain box without causing some of the normal contents of this rigid box to yield and give place. Edema is the extravasation of fluid between the cells in the tissue and the accumulation of fluid within cells themselves. The extravasated serum presses on the capillaries and blood cannot fill them. If this occurs in the neighborhood of the vital centers, the process is not compatible with life, for these centers must have capillary supply in order to function; and it is a fact that edema beginning in one locality can spread, and quickly, to all other parts of the brain, although it is

generally worse in the neighborhood of the injury. Seeing that the fluid is intercellular and intracellular, how futile to think of benefiting it by the withdrawal of cerebrospinal fluid! But it can be benefited by measures directed to changing osmotic tension in the capillaries. Magnesium sulphate given into the alimentary canal, either by mouth or per rectum, soon produces watery stools. The water must come from the blood eventually and this will tend to lessen the edema, or sometimes hypertonic solutions of salt or glucose are given intravenously. This has been a very wide-spread method of treating head injury for the past few years. I do not believe that its benefits have equalled the expectations of its discoverers and now the belief seems to be gaining ground that although it causes temporary dehydration, this is shortly followed by an increase in the hydration of the tissues of the brain.

The question of lowering the tension within the head requires a little consideration. If you feel that bleeding is occurring or has recently occurred; that is, bleeding from vessels of the brain itself (not from the middle meningeal artery), the best treatment is expectant and one expects that as the tension rises, the bleeding will cease. If, however, one does something to lower the tension within the patient's head, the bleeding increases, or having ceased, will be started up again. Consequently, nothing should be done to diminish the intracranial tension if one fears bleeding into the brain substance itself, into the ventricles or from the cortical veins.

The diagnosis. The determine the exact kind and extent of brain injury without opening the cranium, is at the present time impossible. However, there is usually enough evidence to warrant the diagnosis of brain injury. If the concussion did not produce unconsciousness, it is highly probable that the brain injury is slight, if present at all. On the other hand, if the patient remain profoundly unconscious and if sterterous breathing soon begins and there is general relaxation of the muscles persisting after the injury, severe brain injury is likely to be present. And if, in addition, the blood pressure rises abnormally and the pulse becomes slow, the probability of serious injury is still greater. In the case of doubt as to whether the patient has had an apoplectic stroke or a head injury, a persistent onesidedness of the paralysis speaks strongly for apoplexy. Spinal puncture as a diagnostic measure is to be condemned, though there is no harm in having a manometric reading of the tension in the lumbar spine. If bleeding is taking place into the cranium, the spinal pressure should, of course, be higher than normal. The ophthalmoscopic examination of the fundus of the eye does at times show choking of the disc, even very early. My colleagues and I, some years ago, watched it beginning on the right side and progress later to complete choking on the left side, all within three hours from the time of injury.

The treatment. It should be distinctly understood that there is hardly ever any necessity for a hurry-up operation in the case of brain injury. I believe that the only intracranial injury wherein operation is immediately and urgently indicated is that in which the diagnosis is bleeding from the middle meningeal artery or one of its branches. It has been my experience that when a patient was brought in immediately after his injury and it was felt that unless something were soon done to decompress the brain that the patient would soon die, our records show that most of such patients operated on died; in fact, such patients nearly always die soon after the early decompression. I have lived through the time when all haste was made to do a decompression; sometimes even a bilateral subtemporal decompression was done, on patients who seemed on the point of dying because of a recent brain injury—fracture of the skull. They always died. We now quickly and quietly put these patients in bed. We do not raise them up while the blood pressure is low but we do later, unless their symtoms are made worse by so doing. We keep the body warm. We do not give them much fluid. While there is danger of hemorrhage being renewed by a sudden lowering of the intracranial tension, we do nothing to lower that tension without, at the same time, lowering the general blood pressure. If the blood pressure be already low, we simply keep the patient's body warm and the head cool, and wait. When the pressure begins to rise, we give magnesium sulphate, either into the stomach through a tube or into the rectum. We give it in 25 to 50% solution. We repeat it every two hours until it provokes watery evacuations. We like to keep the bowel moving rather copiously during the first three days. We do not give any opiates for the rest-

lessness. We have used paraldehyde, bromides and chloral, allonal, etc., but any time after the first day we relieve the restlessness by doing a spinal puncture. Before we do it, we turn the patient on his side and raise the foot of the bed, so that the axis of the body shall be about 45°. The fluid is allowed to flow out till it is no longer under tension. This gives great relief for the restlessness that follows brain injury. The giving of the salt, I believe, lessens the incidence of edema or lessens its severity. We have also used the intravenous 25% salt, 50 cc at a time, or 50% glucose, 100 cc. These are the adult doses. I have been rather afraid to persist in using the salt after three or four doses. It always seems to me that in the severe cases, if it didn't do any good, it might do harm if persisted in. The same is true of glucose but we have continued to use glucose even to the third and fourth day. I don't believe it is so dangerous to the kidneys as the sodium chloride.

I haven't said anything about the indications for operation, nor will I say anything about the technique, but there are cases of brain injury that should be operated on and these are, first, all that coexist with compound fracture of the skull and these, I believe, should be operated upon as soon as the reaction sets in after the original shock or concussion symptoms have subsided. Again, all those that are accompanied by depressed fracture of the skull. I believe the depression should be remedied as soon as the patient has sufficiently recovered from his shock, although there is perhaps no decided hurry unless important focal signs coexist. Operation is also indicated just as soon as focal signs appear. No one can tell just what it is that lies concealed within the skull, pressing on the cortex to produce such focal signs—a blood clot, a localized edema, even an abscess—whatever it is it should be uncovered and properly treated. More lives are lost and more invalids are created by waiting to see than by looking and seeing and treating. It is important to rememeber that almost any operation on or in the head of the adult can be well done under local anesthesia and no one with experience will deny that local anesthetic is much safer in brain injuries than any other anesthetic so far used.

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MANAGEMENT OF STERILITY IN GENERAL PRACTICE

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About fifteen per cent. of all marriages in the United States are sterile, not due to design on the part of the couple but due to various pathologic causes. Probably the great majority of these wives desire children. The maternal instinct in woman is so pronounced that in many of these cases the unfulfilled desire for children amounts to no less than mental anguish.

It is the plain duty of the medical profession to furnish relief to as many of these as humanly possible.

The difficulties encountered in the solution of this problem are great. The ultimate result is often failure. The expense for the patient and the labor for the physician, represent dampers on our enthusiasm for doing our best with this problem. Yet many patients are able and willing to co-operate if sufficient explanation is given as to what their problem entails.

As the physician proceeds, his realization that he is putting to the test all phases of his gynecologic knowledge, and that he is often succeeding where others fear to really try, will cause his enthusiasm to grow.

An effort is made here to present a chronological procedure, which is far from exhaustive but on the other hand is sufficiently detailed to provide help to the majority of the curable cases without impossible expense for the average case seeking relief.

It is usually the wife who presents herself. Our first concern is when to consider a marriage really sterile. If after a period of three years of normal conjugal relations, no pregnancy has resulted we are justified in proceeding.

A careful history of the wife should be taken with emphasis upon symptoms of gonorrhea, infected abortion, obesity or other endocrine disturbances, and menstrual rhythm. A late puberty or even dysmenorrhea suggests endocrine disturbance and probable infantile uterus. Inquiries should be made about sex desire and frequency of intercourse.

The physical examination occasionally ends our search. Certain congenital malformations

or definite bilateral pyo- or hydrosalpinx make conception obviously impossible. Other findings are only possible causes of sterility and the case deserves further study. Among the possible causes we should note; badly damaged pelvic floor; lacerations, infections, malposition or partial obstructions of the cervix; hypoplasia, displacements or tumors of uterus; tenderness, thickening and inelasticity of adnexa; and lastly tumors of the ovaries.

If any of these possible causes of sterility are found their treatment should await Huhners' test, and unless there is suspicion of adnexal inflammation, Rubin's test should be made before proceeding with any radical treatment of any of the conditions. These two tests are extremely important recent contributions to our study of sterility. Huhner's test often saves us from the renowned reluctance on the part of the male to believe he could possibly be impotent. It also quickly dissipates our concern over inimical genital secretions, rapid loss of seminal fluid from the vagina, or improper position of the cervix.

The patient presents herself at the office as soon after intercourse as possible, preferably within an hour. With a long pipette, having a narrow nozzle (easily made with a glass drinking tube and a gas flame), a small drop of secretion is transferred from the external os to a glass slide. Immediate examination should show living spermatozoa. Thus, this simple test of Huhner's shows us that the husband is potent, that the genital secretions have not killed the sperms, and that regardless of the position of the cervix that the sperms reach it satisfactorily. If no living sperms are found the test should be repeated. A repeated test yielding no living sperms should be followed by a condom specimen. If this shows many active sperms the guilt lies with the female genital secretions. If no sperms or only dead sperms are found the fault is with the male. Discussion of sterility in the male will be omitted here except to say that the most common causes are bilateral epididymitis or bilateral orchitis due to mumps.

Hostility of the cervical secretions was encountered by Mazer in over twenty per cent. of functionally sterile women. He removed this hostility in over two-thirds of these with organotherapy and x-ray irradiation of pituitary and ovaries. He thinks the oestrin therapy probably accounted for the result. Excess vaginal acidity probably is not the cause of the death of the sperms, but more likely it is some unexplained biochemical hostility.

If there is endocervicitis this should be cured by proper application of cautery or coagulation.

When the fault is found neither with the male nor with the genital secretions the next step is Rubin's test. The patient should report to the office again about four days after the next menstrual period. This test can be made in a simple manner. A large glass syringe with a rubber bulb may be used. The glass nozzle should be large enough to occlude the external os efficiently as the point enters the cervical canal. The rubber bulb should have a capacity of four to six ounces. The cervix is painted with iodine, the nozzle inserted and manual bulb pressure used to force air into the uterus, while listening with the stethoscope above the symphysis pubis. If air goes through either tube a characteristic hissing sound is heard. Pain in the shoulders when the patient arises is further confirmation of the patency of at least one tube. Some care and experience is necessary in the application of this test but it soon becomes a simple office procedure.

If the tubes are not patent and there is reason to suspect they may have been closed by a previous gonorrhea, conservatism and retests at lengthy intervals are in order; as conservative treatment in such cases is more likely to restore fertility than plastic operations about the tubes or cornuae. These operations should only be offered to the patient with the understanding that they offer only a possibility of her becoming pregnant. She may be given more hope if lipiodol injection and x-ray show the occlusion to be at the fimbriated end.

When the tubes are found patent, we may then offer the correction of malposition, subserous fibroid, ovarian cyst or other pathology that may have been found on physical examination. Correction of these conditions may be offered first but not solely as an attempt to cure sterility.

It is in the cases where our examination has been negative throughout up to this point, that our greatest difficulty occurs.

There have been sufficient examples of restored fertility after thorough dilatation of the cervix in apparently normal women to justify this procedure at this time in normally menstruating women.

When this possibility has been exhausted our last resource is endocrine therapy. In the obese patient, especially if she has a low basal metabolism, regulated doses of thyroid extract are certainly indicated. In patients without discernable pelvic pathology but with disturbed menstrual rhythm, endocrine therapy really has something to offer. Even in regularly menstruating women the endocrines may help.

In a case of sterility associated with amenorrhea, oligomenorrhea, or menorrhagia, the treatment of the menstrual irregularity is the treatment of the sterility. In the first two types probably the best results have been attained with repeated low-dosage irradiation of the pituitary and ovaries. It is with menorrhagia, exclusive of preclimacteric bleeding, that we have our greatest field of usefulness for endocrine therapy. Two hundred units of prolan (Antuitrin S), repeated as necessary, acts almost as a specific in controlling the bleeding.

The infantile or hypoplastic uterus may frequently be enlarged by two or three months treatment with daily doses of 200-1200 rat units of oestrin by mouth. The larger doses are necessary for the more marked degrees of hypoplasia.

If the menses are regular some hope may be offered by fifteen rat units of prolan every second day during the second half of the menstrual cycle. This indirectly stimulates the endometrial bed for the fertilized ovum. This treatment is based on the known fact that the endometrium is improperly prepared for implantation of the ovum in many normally menstruating women, and on the supposition that sterility may frequently be due to loss of the fertilized egg as well as to lack of fertilization.

Hope should never be taken away from a sterile woman, because even though all measures we possess may fail, we should remember that glandular dyscrasias are somewhat subject to natural change and time may do for our patient what we have failed to accomplish.

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TREATMENT OF VARICOSE VEINS

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In the past four years our varicose vein clinic at the University of Illinois has given over 4,300 injections of various sclerosing substances. In handling this number of injections one develops certain definite ideas as the result of experience, which may be of value to others.

When a patient with varicose veins presents himself to our clinic a history is first taken. An attempt is made to ascertain the cause of the varicose veins. The vast majority of women will give the history that these varicosities occurred after pregnancy, getting worse with each succeeding pregnancy. Here the stasis of blood in the veins of the pelvis is probably the chief factor, although during pregnancy there may be some endocrine disturbance which favors the development of varicose veins. After pregnancy, the cause most often ascribed has been long standing occupations; and, indeed, in men with varicosities, an occupation which requires long standing is almost always the rule. Heredity is a factor of some importance. Slightly over 60 per cent. of the patients will state that either their parents or grandparents suffered from this trouble. Varicosities of the superficial veins are only rarely caused by phlebitis—in our series but once, the result of a phlebitis after typhoid.

An infection will frequently develop in a varicosity, however. Practically all the difficulties in varicose vein injection results from the lighting up of a resting infection. De Takats has well reviewed this subject.[1 2 3] The patient must be questioned carefully as to whether at any time there has been a swelling of the leg with fever, in short a phlebitis.

The physical examination must be thorough, and yet not time consuming. The heart and lungs must be examined and the abdomen palpated for masses. The veins involved, whether the long saphenous or the popliteal, must be noted and the extent of the involvement in each, particularly if any involvement is present above the knee.

A Trendelenburg test is rapidly done. The leg is elevated and the superficial veins are emptied of their blood. Pressure is made with the finger over the long saphenous vein in the

thigh, and the patient is made to stand with the finger still in position. If the varicosities now fill rapidly (within ten to twenty seconds), the communicating veins are incompetent, as sudden filling of the varicosities has occurred through them. We then say the Trendelenburg is positive. If, however, one minute or more is required to fill the varicosities, the blood must be coming in from the capillary side, the communicating veins are competent, and we say the Trendelenburg is negative.

If there is any reason to suspect that the deep veins are not patent, the superficial veins should be emptied and a bandage applied from the toes to the knee. The patient is then told to walk about for one hour and return. In case the deep veins are not patent, the discomfort of the patient is increased, while if they are competent, the discomfort is lessened.

We do not do Wassermanns or Kahns routinely on all ulcers because of expense, but if there is any suspicion of a luetic basis a Kahn is done. Occasionally one is surprised. One individual had been under treatment at another clinic for two years without result, while under antisyphilitic treatment the ulcers rapidly healed.

The technic which we follow in our clinic is the simplest one possible. We have the patient stand upon a bench made for the purpose that is about eighteen inches above the floor. The portion of the vein to be injected is selected and the injection made after proper cleansing. No attempt is made to empty the varicosity of blood at that point nor is any apparatus used to segregate a portion of the vein. A pad held on by adhesive is put over the point of injection. The patient is instructed to remove the pad in two days and to keep on his or her feet. We do not put the leg in a horizontal position, nor do we attempt to confine the solution to any portion of the vein by any special apparatus, and our results are satisfactory. As a rule we like to begin with the lowest varicosities and work upward; but we do not feel that this of necessity must be done, except where the communicating veins are incompetent. Only one injection is given at a time and a 22 to 26 gauge needle with a short bevel is preferred.

Varicosities of the long saphenous vein in the thigh present a special problem. If varicosities below the knee are obliterated and those of the long saphenous above the knee allowed to persist, canalization will occur, and yet injection too near the termination of the saphenous vein may be accompanied by some danger as a portion of the injected fluid may find its way into the femoral. However, we do not hesitate to inject varicosities a hand's breadth or slightly higher above the knee. The results are most satisfactory, in some cases the thrombosis extending to the saphenous opening. De Takats[2] advises high ligation with injection where there is valvular incompetency of the long saphenous above the lower third of the thigh.

At one time or another we have used nearly all the solutions which have been recommended: dextrose, invertose, sodium salicylate, sodium morrhuate, salt, quinine and urethane and all sorts of combinations of these substances.

Of late we have confined ourselves to the use of two solutions—quinine and urethane—2 c.c. for the smaller varicosities and a saturated solution of salt for the larger.

Quinine and urethane is a very efficient sclerosing solution. At times, however, some people are found who have an idiosyncrasy to quinine. Then, too, for very large varicosities it may be inefficient. For these we use 10 c.c. of a saturated solution of table salt, which is highly effective. The objection to the use of salt is based, first, on the severe cramp which it causes and, second, on the fact that a slough which is very slow in healing is produced if any fluid escapes from the vein.

The main contraindication to the use of sclerosing solutions is phlebitis. Any reported death has always had as a factor an induced phlebitis. The question is, then, how to recognize a potential infection. First, the history is important. Any history suggestive of a phlebitis, whether recent or old, should be enough to make one approach the vein with caution. The course of the vein should be felt with the hand and if there is detected any rise in surface temperature no injection should be given. De Takats[1] suggests tests, such as vein puncture, exposure to x-ray, etc., and measuring the skin temperature four hours afterward, but we prefer to wait, meanwhile clearing up any obvious foci of infection, as he suggests.

Many men inject during pregnancy, notably Stoner[4] and Lewis,[5] but our practice is to leave

the varicosities alone until after the pregnancy is terminated, meanwhile using bandages.

Mild diabetes is not a contraindication to injections, provided sugar solutions are not used.

In our clinic we do not inject while an ulcer is present, although aware that some good men do so, if there is no evidence of a very acute infection about the ulcer.[5,2] We have had the experience of having a massive thrombosis and periphlebitis extending to the saphenous opening follow injections given in the presence of very mild looking ulcers. It is also our belief that if this occurs, canalization very promptly ensues and then the problem of procedure is difficult. So we heal the ulcer first and then inject.

The most serious complication of injection treatment is that of massive thrombosis followed by embolism and possible death, an accident which fortunately we have not had in this clinic. McPheeters and Rice[7] reported 53,000 cases from foreign clinics with 11 deaths, four from pulmonary emboli.

Stoner[4] reported three non-fatal cases of embolism in 400 patients and states that four deaths are reported from elsewhere in Iowa, three of which were undoubtedly embolic.

So there is a danger, slight, but real for all that. The reports would seem to indicate that salt is more often used in fatal cases than any other solution, but we cannot believe that the choice of solution is the important factor, but rather the lighting up of a latent infection.

If a slough occurs and the reaction about it is extensive, we use hot applications for a few days and then follow by nothing but a dry dressing. The most of the sloughs are small and do not require hot applications. In about 4,300 injections we have had 50 sloughs, most of them insignificant, but they delayed the treatment from four to thirteen weeks while the slough healed.

If the sclerosing action is very strong and the vein wall thin, there may result a periphlebitis which will be troublesome to the patient but can be regarded with equanimity. However, further treatment must be delayed until the reaction subsides.

In using quinine solutions the patient must always be questioned regarding any idiosyncrasy to quinine and the first injection may well be a small one.

As to results, we have given 4,300 injections to 806 patients, an average of a little over five injections per patient. The number per patient runs from a single injection for a localized varicosity, to nineteen, where both legs were treated. We have given of late about six injections of quinine to one of salt, whereas when we began four years ago the ratio was about 2:1. We believe that this decrease in the use of salt is due mainly to the fact that there is a tendency to catch up on the varicosities. We do not see as many large varicosities as we did at first, nor are they as long-standing.

The immediate results were classed as 764 excellent and 42 fair to poor. By excellent we mean all that can be desired—obliteration of all varicosities and elimination of symptoms. The best results occur, of course, in the Trendelenburg negative group, which comprised about 90 per cent of all cases seen. The poor results are all found in the Trendelenburg positive cases where the communicating veins are incompetent. Some in this latter group will require high ligation of the saphenous vein combined with the injections. However, in many Trendelenburg positive cases good results may be obtained by using the stronger sclerosing solutions and taking care to work from below upward with the injections.

The percentage of recurrence in two or more years is not high, we believe. Howard, Jackson and Mahon[8] at Stanford report recurrences in one year running as high as 98 per cent. To this we cannot agree. However, to check on recurrences in a satisfactory manner in as large a clinic as ours is very difficult. If, however, the recurrences ran anywhere near to this figure we should be getting large numbers of recurrences from our own and from the other clinics in our city. And this we are not. As nearly as we can check we believe the recurrences run about 15 per cent. in one to two years. One must distinguish between a true recurrence in a vein and development of a new varicosity in a vein which has not been treated previously.

Comparing the results with those of operative treatment, the weight of evidence is much in favor of the injection treatment. Kilbourne[6] found in 4,607 operative cases a mortality of sixteen, about 0.4 per cent. In a series in which the injection treatment was used the rate was 0.02 per cent. As noted above, McPheeters and

Rice[7] collected 53,000 cases treated by injection and reported a mortality of only eleven cases. So far in our clinic we have had no mortality and no very serious complication.

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ECLAMPSIA
COOPERATION OF GROUPS OF PHYSICIANS

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The toxemias of pregnancy constitute the greatest responsibility of the obstetrician to his patient. Eclampsia, hemorrhage and infection are the three most frequent causes of maternal death in childbirth. Hemorrhage and infection are, for the most part, intrapartum and postpartum problems. Most cases of eclampsia and the associated toxemias of pregnancy are problems of pregnancy and prenatal care.

The clinical course and pathological findings in the toxemias of pregnancy have been thoroughly studied by many observers.[1] There are many different physiological systems involved in eclampsia. In spite of the vast knowledge of clinical and pathological changes, the etiology is unknown.

Eclampsia is frequently thought of as a clinical entity. It would better be considered as the end result of several of the toxemias of pregnancy, i. e. that condition to which any of them may lead. Studying the patient for the first time during a pregnancy, it is frequently impossible for the obstetrician to identify the exact type of toxemia in progress. It may be necessary to recall past history and physical findings, interpret chemical or physiological changes or wait until the future to determine the underlying disorder. The work of the internist, physiologist and chemist should complement the work of the obstetrician in this complex group of toxemias.

The following clinical study of 25 cases of eclampsia which have occurred at St. Luke's Hospital in 5 years time is presented. Most of these patients had prenatal care. Thus, the women who received adequate prenatal supervision but had eclampsia represent the "irreducible minimum" of cases which develop, a number which further study of the disease should reduce. It is hoped that the problems of this disease and the responsibilities of the various groups of physicians will be illustrated.

Incidence.—In the 5 years there were 5,336 women delivered in the hospital, 3,230 white and 2,106 Negroes. There were 25 cases of eclampsia, an incidence of 1 case of eclampsia in every 213 deliveries, or 0.47%. Of this number, 13 were white and 12 were negroes, an incidence of 0.42% (1 case in 248 deliveries) for the whites, and 0.75% (1 case in 175 deliveries) for the negroes.

Six patients (24%) died. Three were white and 3 black. Among the whites there was one death for every 1,077 delivered (0.09%) and among the negroes one death for every 702 delivered (0.14%). Of all patients delivered in the entire 5 years, one in every 889 (0.11%) delivered, died of eclampsia.

The majority of the cases occurred in women pregnant for the first time; 14 of the patients had eclampsia in their first pregnancy. If early abortions were excluded, it was found that 18 patients had not previously carried a pregnancy beyond 3 months.

There was no distinct seasonal variation observed in the onset of eclampsia. Five cases occurred in Winter, 7 in Spring, 5 in Summer and 7 cases in Fall.

The age group was that common to childbearing women.

Prenatal Care. Twenty-three of the 25 patients had prenatal care varying from 4 to 23 weeks. The patients were cooperative and prenatal instructions were usually obeyed. The average time that the cases were under observation was 18 weeks. Five patients had been admitted

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.. For an excellent review of the pathological changes in eclampsia see, Stander, H. J. The Toxemias of Pregnancy. Medicine 8: 1, February, 1929.

to the hospital one or more times during their pregnancies previous to the admission in which the eclampsia occurred. The case histories of two of these patients will illustrate some of the problems which we have in prenatal dispensary work.

Case 10. M. W., aged 41 years, white; had been under observation on several services in the hospital for 15 months. Her obstetrical history extended over a period of 16 years. She first became pregnant at the age of 24. This pregnancy ended at term with a living child. The next year she had a spontaneous abortion, cause unknown. Between the ages of 25 and 34 she had 7 full term pregnancies, all normal. Spontaneous abortions occurred at 38 and 40 years of age.

She was seen in the medical dispensary in May, 1927, five months after her last abortion. She complained of nervousness, palpitation and loss of strength of 2 years duration. The essential physical findings were enlarged thyroid, exophthalmus, tachycardia and basal metabolic rate of +47%. The blood pressure was 190/120. It fell to 150/86 soon after admission to the hospital. A subtotal thyroidectomy was performed on June 21, 1927, and the patient was discharged in good condition on the 22nd post-operative day. She felt well from the time of discharge until a year later. The basal metabolic rate varied from —6% to +2% during this time.

The patient was again seen on July 26, 1928, at which time she complained of edema of the legs and headache. Her last menstrual period had occurred on January 18, 1928. The blood pressure was 226/140. A diagnosis of pregnancy in the 27th week was made.

Two days later she was admitted to the Gynecological service of the hospital where she was observed for 6 days. The headache persisted for 3 days, the edema lasted until she was discharged. The blood pressure range during her admission was 204/124 to 240/150. The urine contained 0.5% albumin but no casts. The total non-protein nitrogen was 32 mgm., the urea nitrogen 13 mgm. and the uric acid 4 mgm. per 100 cc. of blood.

On August 9 in the 29th week of pregnancy she was seen in the dispensary with a blood pressure of 240/142 and again advised to enter the hospital. She was admitted to the Gynecological service one week later. The blood pressure on admission was 260/140, pulse 92. She voided 300 cc. of bloody urine, specific gravity 1.010, albumin++++, many hyaline and granular casts. She complained of severe pain localized in the epigastrium and was vomiting at frequent intervals.

The first convulsion occurred two hours after admission. During the next twelve hours she had eight more. She remained in coma from the onset of the first convulsion until death. The blood pressure 2 hours before death was 240/120. She died 6 hours after her last convulsion and 18 hours after the onset of eclampsia. Autopsy was refused.

Hypertrophy of the thyroid gland without symptoms is common during pregnancy. Increase of the basal metabolic rate is an almost constant concomitant of pregnancy. Occasionally nervousness, tremors and tachycardia accompany this phenomenon. Further, these symptoms can usually be relieved by Lugol's solution.[2] There is no proof that disturbance in the function of the thyroid gland can cause eclampsia. In this case there was a clear cut history of the association of hyperthyroidism with a disturbance in 3 pregnancies, the last of which was a fatal eclampsia in the 30th week of pregnancy.

Case 4. A. D., white, aged 23 years, was first seen in the prenatal dispensary in the 30th week of her second pregnancy. She had had one full term instrumental delivery at another hospital. At her first prenatal visit the pregnancy was considered to be normal. Four weeks later she complained of occasional headache. The blood pressure was 146/98. Albumin and hyaline casts were present in the urine. She was admitted to the hospital for one week, during which time the headache disappeared and the blood pressure fell to 124/88. Albumin and casts disappeared from the urine. She was sent home, but returned 16 days later, in the 38th week of pregnancy with eclampsia. Under appropriate treatment she recovered.

This patient is illustrative of a group of cases usually diagnosed as pre-eclampsia in which it is impossible to predict the outcome. The toxemia, first appearing in the 34th week of pregnancy was mild. Within a week it had entirely cleared up as far as any symptoms, physical signs or laboratory data could demonstrate. But within two weeks time a relatively benign pre-eclampsia developed into eclampsia. It is impossible to tell which patients of this group of mild toxemia will recover and which will have eclampsia. We do feel that prenatal care has greatly reduced the incidence of eclampsia in this group. Appropriate treatment of pre-eclampsia reduces the number of patients whose toxemia progresses to eclampsia. Because of the beneficial action of the treatment already instituted, it is possible that eclampsia tends to be more mild if it should occur.

Onset of Signs and Symptoms. Patients presenting any of the following signs or symptoms in the second half of pregnancy are considered to have pre-eclampsia:—blood pressure of 140 systolic or 100 diastolic, presence of erythrocytes, albumin, hyaline or granular casts in the urine, edema, hydramnios, headache of more than transsient duration, visual disturbances or epigastric pain. The onset of the first sign or symptom varied from the 15th to the 40th week of pregnancy. The average of all cases was the 35th week.

Headache. Eighteen (72%) of the patients complained of severe headache. The duration before the onset of convulsions varied from 1 hour to 4 weeks. Six patients had this symptom for less than 4 hours, five within 24 hours, and 2

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women developed it a week before the convulsions. Four patients had intermittent attacks of headache for a period of several weeks and one not until 6 hours after the onset of eclampsia.

Vomiting. Sixteen patients (64%) had severe vomiting. In 8 cases the vomiting occurred within 4 hours of the first convulsion, and in 3 less than 24 hours. Five had severe emesis for a week before the eclampsia.

Visual disturbances. Seven women (38%) had ocular symptoms ranging from blurred vision to complete blindness. Of the 7 cases, 4 were of less than 4 hours duration, 1 less than a day, and the others 3 and 5 days before the onset of eclampsia.

Epigastric pain. The presence of severe localized epigastric pain is always of the most serious prognostic significance. When it occurs in the course of a preeclampsia, convulsions are imminent. Sharp pain localized in the upper abdomen was present in 5 or 20% of our cases. In every instance less than 4 hours elapsed between the onset of pain and eclampsia. The average time was 2.5 hours.

Hypertension. The systolic blood pressure was elevated above 140 mm. of mercury in 24 of the 25 cases. In 3 patients the elevation in blood pressure occurred in the 24 hours preceding the eclampsia. In the remaining 21 women the average time which the blood pressure was known to be above 140 was 36 days.

A rise in the diastolic pressure above 100 mm. of mercury was found 23 times. In 5 cases the rise developed within 24 hours of the convulsions. The average of the others was 14 days.

Urine. Albumin was present in the urine before the onset of eclampsia in all but 2 cases. One of these was catheterized 2 hours before the first convulsion and a clear specimen obtained. The other patient had a complete anuria and no specimen was obtained.

Hyaline and granular casts were found before the eclampsia developed in only 5 instances. In 11 others they were found in the first specimen obtained after the beginning of convulsions. No casts were found in the remaining 8 cases.

Edema. Nineteen patients (76%) had demonstrable edema of the extremities, abdomen, face or vulva. The average duration was 12 days preceding the eclampsia. In one case it appeared suddenly 30 minutes before the first convulsion, in the others it had been present from 1 day to 7 weeks.

Polyhydramnios. Five (20%) of the patients had an excessive amount of amniotic fluid. Three had the hydramnios at the time of the eclampsia. Two women had it in the 6th month of pregnancy. In both instances permanent absorption of the fluid occurred after a short period of treatment.

Onset of Convulsions. The earliest case occurred in the 28th week of pregnancy, the latest at term. The average time was 38 weeks. Four weeks elapsed between the average time of beginning pre-eclampsia (31st week) and onset of convulsions. While there are wide variations in the duration of pre-eclampsia, in the "average case" there was an interval of a month between the two phases of the disease.

In ten cases (40%) the first convulsion occurred before labor, i. e. eclampsia of pregnancy. In 9 instances (36%) eclampsia developed during labor. The remaining 6 (24%) were eclampsia of the puerperium. Only once when convulsions began before the onset of pains did they extend into labor. This patient had convulsions in labor and after completion of the third stage. Three cases which began in labor had additional convulsions after expulsion of the placenta.

Eclampsia of the puerperium usually comes on within a few hours after labor. One woman, however, did not develop the disease until 64 hours postpartum.

Case 21. M. L., aged 28 years, Jewess, first pregnancy. Her past history was negative except for scarlet fever in childhood. She had been seen 7 times between the 10th and 34th weeks of pregnancy. Fifteen days after her last prenatal visit the membranes ruptured prematurely. One hour later pains began. Labor was very rapid, 5 hours after onset the patient was delivered of a small, viable fetus. The blood pressure at the time of delivery was 130/78. The urine was negative. There was no edema and no symptoms of a toxemia. She was considered to be a case of premature labor in the 36th week of pregnancy.

The next two days were uneventful. In the evening of the 3rd postpartum day she complained of a mild frontal headache and slight blurring of vision. Soon thereafter she developed complete amaurosis. One hour after she first complained of headache the patient became stuporous. She was catheterized. The urine had a specific gravity of 1.010, it contained no sugar, albumin or casts. The pulse rate had increased from 72 to 104. The blood pressure was 184/120. She was given a hypodermic injection of morphine sulphate.

Two hours later she had a typical eclamptic convulsion followed by deep coma for 6 hours. The pulse

rose to 146. In 2 hours following the first convulsion she had 3 more seizures. Her condition was extremely critical for the next 6 hours. Treatment consisted of morphine, M_gSO_4 intravenously, heat and oxygen. She was again catheterized 6 hours after the first convulsion. The urine had a specific gravity of 1,040, albumin++++, hyaline and granular casts and erythrocytes were present.

Improvement began after 8 hours. She left the hospital on the 17th postpartum day feeling well. The blood pressure on discharge from the hospital was 120/80, the urine was negative and she was free of symptoms.

The only conceivable warning in this case was the premature termination of the pregnancy. But many pregnancies end before term which are in no way associated with a toxemia. There is as yet no method available to determine if a given premature labor is due to a toxemia or is associated with one or more of numerous other causes of premature labor.

Number of convulsions. The average number of convulsions for all patients was 4.6, with a variation of from 1 to 15. Primiparous patients had a greater number of convulsions than multiparous. Fourteen primiparous women had an average number of 5.6 convulsions each while 11 multiparous patients averaged 3.5 each. Every woman was in coma following the eclamptic attack. The average duration of coma was 9 hours.

Height of blood pressure.—Elevation of the systolic blood pressure was recorded in every case. The highest reading was 260 and the lowest 144. The average was 188. The diastolic pressure was elevated to 100 or above in all but one case. The highest was 160, the average was 122.

Blood Studies. Blood chemistry studies were made nine times. The total non-protein nitrogen was slightly elevated in one case.

Case 20, W. F., aged 28 years, negress, in her second pregnancy. Her first pregnancy, 3 years previously, had terminated in a spontaneous abortion at 2 months. The past history was negative. She felt well during her pregnancy. In the 25th week she had a rise in blood pressure to 134/90, all other findings normal. In the 28th week she suddenly developed eclampsia and died undelivered 5 hours after her 4th convulsion. The blood chemistry findings taken 11 hours after the beginning of convulsions were total nonprotein nitrogen 46 mgm., urea nitrogen 20 mgm, and uric acid 5 mgm. per 100 cc. of blood.

In all other cases the non-protein nitrogen and urea nitrogen fell within the range of accepted normal values. The uric acid content of the blood was raised in every instance but one. The highest was 8.8 mgm. per 100 cc. of blood. The average was 5.5 mgm. Of the 6 instances in which the CO_2 combining power of the blood was determined it was found to be decreased in 5 cases. The lowest was 28 vols. %. The average of the 6 was 45 vols. %.

In 3 patients a marked degree of secondary anemia developed within a few days after the eclampsia. In none of these had there been sufficient hemorrhage at the time of delivery to account for the later anemia. In fact, in all the patients the postpartum bleeding was very scanty.

TREATMENT

Two methods of treatment were used, (a) an immediate operative procedure, and (b) the Stroganoff regime.[3] In some cases the intravenous use of $MgSO_4$ was added.

Immediate Operation. Differentiation must be made between an immediate operative procedure done to combat the effect of the eclampsia and an obstetrical operation arising in the course of labor in an eclamptic patient. In the first instance the operative procedure is done as part of the treatment of eclampsia. The object is to hasten delivery in the hope that the disease will be favorably influenced. An operation for an obstetrical reason, arising independently during labor in a patient with convulsions is not to be considered as a method of treatment of the toxemia. The operation would be done irrespective of the disease. Immediate operation as a treatment of eclampsia was done five times. Midforceps was done once, bag induction twice and Cesarean section twice. Two cases (40%) died.

Stroganoff. The Stroganoff plan of treatment was used 20 times. In 10 cases venesection was done. Intravenous use of $MgSO_4$ was substituted for venesection 4 times. In 6 instances neither venesection nor $MgSO_4$ was used.

In 10 cases in which venesection was used, the blood pressure was lowered 3 times. The average fall in pressure was 23 points systolic and 13 points diastolic. In all cases relief was only temporary as within 12 hours the pressure rose to its previous level. In 4 instances where $MgSO_4$ was given the blood pressure was lowered in all. The average fall was 22 and 17 points respectively. In each case the fall was permanent.

Of the 20 patients treated by the Stroganoff

3. Stroganoff, W.: The Improved Prophylactic Method in the Treatment of Eclampsia. N. Y., W. Wood & Co. 3rd. (1st. English) ed. 1930.

method there were 4 deaths. In this group, therefore, the maternal mortality was 20% as compared to 40% in which immediate operation was the principal method of treatment.

Labor. Four patients died undelivered, two had Cesarean section, leaving 19 who were delivered from below. Of these patients, 13 were primiparous and 6 were multiparous. Ten patients delivered spontaneously (1 death). There were 4 low, 2 mid and 3 high forceps deliveries (no deaths). Two patients were delivered by Cesarean section (1 death).

Babies. There were two cases of twin pregnancy in the series. Thus, of the 27 possible live babies there were 4 died undelivered, 3 still births and 4 who died before the mother was discharged from the hospital. There remained only 16 babies (59%) to be discharged from the hospital alive.

The fetal mortality is notoriously high in eclampsia. Any plan of treatment designed primarily to increase the chance of survival of the fetus is a procedure undertaken for an average expectancy of 59%. In a disease with such a high mortality we feel that every effort should be directed toward the care of the mother with but scant consideration for the outcome to the fetus.

Puerperium. Twenty-one patients were observed in the puerperal state. Two of these died of generalized infection secondary to an endometritis. One other had a bronchopneumonia of 12 days duration, one had a mild endometritis lasting 5 days and 3 had bronchitis for a few days. In other words, 33% of the mothers had the added risk of an infection during the puerperium. It is axiomatic that eclamptic patients do not tolerate infections as well as other individuals. It must be gravely considered in the contemplation of any operative procedure during the course of an eclamptic attack.

Subsequent Pregnancies. Gibson[4] has shown the danger of predicting the outcome of a subsequent pregnancy in a woman who has previously had a toxemia of pregnancy. He states "that freedom from albuminuria with a normal arterial tension following a toxic albuminuria in the course of one pregnancy is by no means a sure criterion of its non-occurrence in a subsequent one. It may be permitted . . . after due consideration to the three outstanding hazards—first, irreparable damage to kidney and heart; second, prematurity; third, eclampsia."

It has been possible to observe five patients in later pregnancies, two of whom have had two pregnancies each following the one in which eclampsia occurred. While none of these has had a repetition of the eclampsia, of the seven future pregnancies observed, mild toxemic symptoms developed in four instances or 57%.

CONCLUSION

In a disease which causes such profound changes in body metabolism it is not remarkable that the etiology of eclampsia has so long remained obscure. Time and again theories have been advanced regarding the cause of this disease, but none has been able to explain all the changes which occur. The late J. Whitridge Williams'[5] criteria for a satisfactory explanation was that it "must explain (a) the genesis of the characteristic hepatic lesions, (b) the predisposing influence of primiparity, multiple pregnancy and hydramnios, (c) that the disease is more common in northern countries than in the tropics, (d) that its incidence increases as pregnancy approaches term, (e) that marked edema is usually a favorable sign, while its absence adds to the gravity of the prognosis, (f) that true eclampsia rarely reoccurs, whereas chronic nephritis gives rise to increasingly serious trouble in each succeeding pregnancy, (g) that intrauterine death of the fetus is usually followed by improvement, (h) that a milk diet, which is high in protein and mineral constituents is as efficacious as one low in protein and free of salt."

Too often theories or methods of treatment have been directed to only one phase of the disease. The words of Eden in commenting on the reports of the British Congress of Obstetrics and Gynecology for 1922 are significant. He said[6] in speaking of the relation of the convulsions, per se, to the disease, "arrest of the fits is, however, not the same thing as control of the disease, for 22.9% of the cases in which fits

4. Gibson, H. K.: The Sequelae and Later Aspect of the Toxic Albuminurias of Pregnancy. Surg., Gyn. & Ob. 32: 513, June, 1921.

5. Williams, J. W.: Obstetrics. N. Y., D. Appleton & Co. 6th. ed., 1930.

6. Eden, T. W.: Eclampsia. J. Obst. & Gynaec. Brit. Emp. 29: 386, 1922.

ceased immediately after delivery nevertheless died. Termination of labor is, therefore, not the sole aim of treatment, it is not even the principal aim. The urgent indication is rather the control of the disease by elimination of the toxic bodies,[7] of which a lethal dose may already be in circulation, independently of the question of the possibility of their future production during the continuance of pregnancy." In other words, convulsions, hypertension, albuminuria, coma; any one of these, is only one phase of the disease. Limitation of study to only one phase can hardly be expected to bring success. Study of the basic pathological disturbances may bring hope of achieving the desired result, namely, discovery of the etiological agent.

During the past three decades considerable improvement has been made in the clinical treatment of eclampsia. This improvement has come about through the conservative method of treatment. Beneficial as this result has been, improvement has been empirical rather than based on understanding of the etiology of the disease. The results of prophylaxis through systematic prenatal care have been more satisfactory because of the resultant decrease in the incidence of eclampsia. Until we are able to say which cases of pre-eclampsia will develop convulsions and which will not we must consider every toxemia as a potential death from eclampsia.

How, then, can progress in the study of this disease be accomplished? A uniform method of study by which different individuals or different groups may correlate their work is needed. Definite criteria for the various groups of toxemias should be established with a recognition of the important features of each so that study of these conditions might proceed along uniform lines.

It is a problem in which there is urgent necessity for cooperation between many groups of individuals. The clinicians (obstetrician and internist) are primarily responsible for the care of the patient and the correlation of the work of the groups. The pathologist must do his share. Especially desirable are the studies of early and late results of eclampsia. Pre-eclampsia itself is rarely fatal. The known pathological findings of eclampsia are those of a necrosis. Death in eclampsia usually comes early, so that little opportunity has been presented for study of the healing processes of the disease. Although rare, death in the pre-eclamptic state or late in eclampsia might occur. Such cases should have complete detailed study in an attempt to learn the pathology of the beginning of the disease and the healing and end results of eclampsia.

Thrombosis is frequently found in the capillaries of the liver in death from eclampsia. It is also urgently necessary to know of the condition of the capillaries elsewhere in the body. Cholesterol deposits are found in the liver. What of other changes in the chemical reactions of tissues in this disease? With more detailed physical study of the blood further light has been thrown on the behavior of some of its constituents during eclampsia. With the introduction of physico-chemical methods of study it is to be hoped that further information may be gained. The physiological chemist and physiologist must add their observations in the study of eclampsia.

The work of all groups must be correlated so that what may finally be expected is an understanding of etiological factors which will enable us to trace the sequence of events from the beginning of hypertension, edema or albuminuria through to the severe convulsive stage in the light of understanding of the principles involved. When that time arrives, but not until then, we can attempt to eradicate a condition which at present is one of the most hazardous risks of childbirth.

7. Substitute for the phrase "toxic bodies" any term (as yet undescribed) which identifies the real etiological agent and the concept remains true. (i. e., the etiological agent is not, of necessity, a "toxin.")

THE VALUE OF STOVARSOL IN THE TREATMENT OF SYPHILIS

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There is no crystallized formula for the treatment of syphilis; there are many formulas. These may be different in the relative choice of drugs, their combination, the routes of administration, the sequence of their use, the dosage and other details, but there is a broad underlying principle common to all. There must be adequacy of treatment with effective agents. There must be persistent therapeutic effort, irrespective

of the outcome of the Wassermann. There must be subsequent periods of surveillance.[1]

The most effective agents available in the treatment of syphilis are 1: The arsenic compounds, 2. Bismuth, 3. Mercury and 4. Iodides. Stovarsol is an arsenic compound, being No. 594 among the 605 preparations with which Paul Ehrlich worked before he arrived at the formula for Salvarsan "606." Ehrlich considered No. 594 unsuitable for intravenous use, because it produced harmful results when injected into mice. Investigation into the anti-syphilitic properties of stovarsol began in France in 1921. Since then there has appeared considerable literature on the oral administration of stovarsol as a prophylactic and therapeutic agent in syphilis. The German literature referring to it as "Spirozid," French literature as "Stovarsol" and Russian as "Osarol."

J. Tuscherer,[3] Paul V. Kiss[4] and Alois Bratusch-Morrain[5] have all worked out dosage tables, the Bratusch-Morrain table being most generally used applies to infants. He has the impression that the same basis of dosage holds for older children, but that in central nervous syphilis larger doses give a better result; his dosage table follows:

For 7 days 0.005 grams of stovarsol times kilos body weight.

For 7 days 0.01 grams of stovarsol times kilos body weight.

For 7 days 0.015 grams of stovarsol times kilos body weight.

For 42 days 0.02 grams of stovarsol times kilos body weight.

After this, a rest period of four to six weeks follows, courses of treatment and rest periods being repeated until serologically negative and three times after.

Toxic effects of stovarsol have been noted more frequently by American authors[6-7-8] than by European authors. Various authors report the same toxic manifestations that we frequently see following the intravenous administration of arsphenamine, only very much milder in character. Individual tolerance no doubt plays its role, since one of my patients, an adult tabetic, took ten 0.25 grams tablets daily for two weeks without any untoward effects, except a slight diarrhea which subsided immediately upon the withdrawal of the drug.

Not many remedies are accorded the enthusiasm that stovarsol has received for the treatment of congenital syphilis; all authors report favorable effects upon the signs of syphilis; clinical symptoms disappearing in from three to four weeks; the skin clears from one to four weeks; the spleen and liver regressing in from four to eight weeks. However, there is fairly uniform agreement that stovarsol is less effective in reversing the Wassermann and that longer periods of treatment are necessary than with other methods of treatment. In adult syphilis the drug has been used extensively with equally gratifying results.

The first article to appear in this country was by Creger and Gastineau[2] reporting fifteen cases of adult syphilis treated with stovarsol and concluding that stovarsol has a place in the treatment of syphilis. Accurate dosage is yet to be determined and that its efficiency is comparable to that of neoarsphenamine. Maxwell and Glaser[6] report ten cases of congenital syphilis treated with stovarsol and state that the drug cannot be used indiscriminately and that the exact position which stovarsol should occupy in the treatment of congenital lues remains yet to be determined; that the advantages of the per oral treatment of congenital lues over other methods usually employed are evident. Abt and Traisman[7] report in detail twenty-two cases of congenital syphilis treated with stovarsol and conclude that stovarsol in the treatment of congenital syphilis is an effective and rapidly acting antisyphilitic remedy; the medication is easily administered and easily controlled and that their results warrant the belief that the per oral administration of stovarsol is the method of choice in the treatment of congenital syphilis. Harold A. Rosenbaum[8] reports forty-one cases of congenital syphilis treated with stovarsol and states that clinical results were excellent and that he obtained a serologic reversal in all cases. Tuscherer[3] says that the effect of stovarsol on the signs of syphilis and in reversing Wasserman reaction is in no way inferior to that obtained by the generally employed injection treatment with arsphenamine and mercury. Bratusch-Morrain[5] reports ninety-eight cases of congenital lues under treatment. Forty-seven were under treatment with stovarsol; twenty (or 42.7%) of these became sero-negative, while fifty-one were being treated with neosalvarsan and mercury, fifteen (or 29.4%) became sero-negative. VonKiss[4] in his series of eighteen cases

treated with stovarsol reports seven as seronegative.

The fact that results obtained with the present method of intra-venous arsenical therapy is not entirely satisfactory in all cases of syphilis, led me to prescribe stovarsol to A. C. age 20, body weight 98 pounds. She had been under intensive intravenous and intramuscular injections since August, 1925; recurrent skin and mucous membrance lesions frequently manifesting themselves. In October, 1928, she developed severe headache and was obliged to remain in bed. I prescribed four stovarsol tablets 0.25 grams per day; on the second day following I was surprised to see her walking into my office and stating that she had slept well the previous night and that her headache had entirely disappeared. She continued to take the stovarsol for six weeks and during the rest period of three weeks Mercury bichloride in elixir iron, quinine and strychnine. This regime was continued until November, 1929, when she was given a series of fourteen intramuscular injections of bismuth. She had no subsequent relapses. The last I saw her was July, 1930, clinically and serologically negative.

E. R., aged 7 years, weight 60 pounds, indurated prepucial ulceration, dark field positive, Kahn negative, was given seven intramuscular injections of sulpharsphenamine 0.3 grams at weekly intervals, following this series of sulpharsphenamine injection his blood was Kahn 2 plus. I then put him on stovarsol discontinuously i. e. one stovarsol tablet 0.25 grams three times daily for four days, then a three day rest. This was continued for six weeks, at which time his Kahn was negative. He had three additional such courses, he remaining clinically and serologically negative.

R. A., aged 10 years, weight 70 pounds, healed indurated ulceration on prepuce, suppurating syphilides over buttocks and thighs, dark field positive, Kahn 4 plus, was given seven intramuscular injections of sulpharsphenamine 0.3 grams at weekly intervals, his blood at this time was Kahn 3 plus. All other ulcerations having healed, he was given a course of stovarsol the same as the previous case and his blood was Kahn negative after the first course of stovarsol and he has remained clinically and serologically negative.

J. H., aged 12 years, weight 90 pounds, Hutchinson teeth, interstitial keratitis for five weeks, Kahn 4 plus. He was given stovarsol tablets, one tablet 0.25 grams three times daily for four days then a rest for three days. This was repeated for twelve consecutive weeks. All of his symptoms having cleared his Kahn remained 4 plus. Dr. Spitze was kind enough to observe this boy's eye and he reported to me that recovery of the eye was probably more rapid than with arsphenamine intravenously and without any manifestation of a Herxheimer reaction.

C. Mc., aged 3 months, weight 8 pounds, snuffles, luetic facies, desquamating palms and soles. She was given ½ stovarsol tablet 0.25 grams per day for 9 consecutive weeks. At this time she had made a gain in weight of 2½ pounds, no evidence of snuffles, palms and soles clean and development excellent.

J. S., aged 25 years, weight 145 pounds, chancre of left tonsil, indurated area extending beyond anterior pillar and involving palate. Dark field positive, Kahn 4 plus. He was given two 0.25 grams stovarsol tablets 3 times daily for 4 days and rest period of 3 days for seven consecutive weeks. The tonsilar ulceration had healed and was covered with healthy mucous membrane on the 12th day.

CONCLUSIONS

1. I began the use of stovarsol in certain cases of lues in 1928. The cases reported are a cross section of the type of cases that were treated with this drug.

2. Reactions have been rare and very mild and without any exception, when a reaction did occur, abated immediately upon the withdrawal of the drug.

3. Patients taking stovarsol should report for observation every fourth or fifth day.

4. Dosage must be worked out by the physician to suit the individual case. In my hands the discontinuous method of administering the drug has proven itself most satisfactory, this implies to take the tablets for four days and follow with a rest period for three days, repeating this for nine or ten consecutive weeks for a course. Children from six to twelve years of age weighing from 50 to 80 pounds can safely take two or three 0.25 grams tablets per day. Four 0.25 gms. tablets per day apparently is an adequate adult dose. Infants obviously must be given smaller doses.

5. The per oral administration of stovarsol is the remedy of choice in the treatment of syphilis in children, cooperation of parents and patients being far better than with the injection methods.

6. Stovarsol per oram is comparable to arsphenamine intravenously as a rapidly acting anti-syphilitic remedy on the clinical signs of syphilis and the serological reaction.

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THE TREATMENT FOR CHOREA BY MEANS OF TYPHOID VACCINE INJECTIONS

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Two cases of acute chorea and four of Huntington's type of the disease have been treated with typhoid vaccine injections during the past year at the Kankakee State Hospital, with results which seem to be of particular interest.

A brief review of the various attempts made by others during the last twenty years to bring relief to those afflicted with the malady is presented herewith, as the basis for a better understanding of the evolution of treatment for the condition.

In the decade preceding 1923, many procedures were followed in treating chorea, none of which produced real improvement or lasting results. About all that can be said of them is that amelioration of the symptoms was sometimes achieved. Since 1923, several forms of treatment have been introduced which have yielded more promising results. Particularly is this so in the case of acute chorea.

White and Jelliffe[1] in 1913 summarized the earlier efforts by stating that for the Sydenham type of chorea an understanding of the patient himself should first of all be reached, and then an effort should be made to have the environment conform to his needs. In addition, they recommended that additional treatment include rest in bed, appropriate hydrotherapy, special diets, and corrective measures directed towards the elimination of disease foci from the body. The use of such drugs as sodium salicylate, Fowler's solution and antipyrine (the last-named in rather large doses) was urged, and also administration of sedatives such as strontium bromide. Four years later (1917) the same authors[2] in another text-book, advocated no essential change in the treatment, but the use of Fowler's solution seems more strongly stressed.

The form of treatment recommended by them was the one in general use in this country until a few years ago, as is testified by the absence of any essential change in the therapy outlined in even recent text-books on the subject. In fact, the Journal A. M. A.[3] in response to an inquiry addressed to the Answers and Queries section, pointed out that the treatment for chorea is nonspecific, should include rest in bed, appropriate hydrotherapy, potassium arsenite, and salicylates. The comment was made that "this is all that is known about the treatment of chorea."

Regarding the more chronic form of chorea known as Huntington's, all references are agreed that there is no treatment for this condition, other than rest in bed and the use of sedative drugs.

Various attempts which were made to combat successfully the malady include the use of phenyl-ethyl-hydantoin, otherwise known as nirvanol, which was introduced by Husler[4] in 1924. He reported having obtained good results and lasting improvement with its use. His report is one of the first instances of lasting improvement having been secured in treating chorea, and is in contrast to the earlier results of attempted therapy, which tended merely to diminish the severity of the presenting symptoms during the acute stage.

In 1930, six years after the introduction of nirvanol, Pilcher and Gerstenberger[5] reported its use in the United States. They administered it in doses of 0.1 to 0.15 grams three times daily. Continuing this medication from six to nine days, dependent upon the case, a temperature was produced in the patient. Sometimes the fever reached 104 degrees F. A body rash appeared at about the same time as the fever occurred. At this stage, the drug was no longer given. The results of this form of therapy were gratifying, but it was observed that complications, especially those of a pulmonary character, occurred, and the use of nirvanol was therefore not highly recommended by them.

Jones and Jacobs[6] in 1932 used nirvanol in treating three obstinate cases of chorea, but they did not obtain any permanent results. This observation agrees with the experiences of others

who claim that there is no special treatment for Huntington's chorea.

From the foregoing it is seen that nirvanol apparently did not prove to be the drug of choice, partly because of its limitations and partly because of the complications following its use.

At about this time, Drucker[7] introduced a drug known as phenobarbital into the treatment for chorea minor. Phenobarbital was administered in rather large doses until a generalized body rash, or other symptoms of drug intoxication, appeared in the patient. The body rash was accompanied by a rise in the patient's temperature. In over half of the cases so treated, a clinical recovery within two weeks was observed. Because no complications were observed, the use of phenobarbital was recommended as being safer and more efficacious than nirvanol in such instances.

Going back a little chronologically, it is found that at about the time nirvanol was first being advocated, Kern[8] in 1923 introduced artificial fever therapy for acute chorea. The fever was produced by the injection of milk into the buttock. Excellent results with lasting improvement were reported therefrom.

From that time on, foreign protein therapy became widely used in Central Europe in combating chorea, but apparently it was not employed in America, as the current literature contains scant reference to this form of therapy.

In connection with the use of foreign protein therapy, Turnovszky[9] wrote that he early promulgated the theory of interferential treatment, that is, the theory that an incidental disease affecting the organism causes another already existing disease to be cured. Thus, he observed that certain cases of chorea were cured following an attack of typhoid fever.

The next reference appearing chronologically is that of Ayla[10] who cited a case of a twelve-year-old child with acute chorea with whom many forms of treatment had failed. Following the inoculation with treponema Hispanicum, the second temperature rise resulted in a total and permanent cure of the condition.

It becomes apparent from the foregoing review that all the methods have in common the production of a body temperature, and that any improvement, which may occur, was observed after the temperature rise. Although the older methods did alleviate or lessen the symptoms, they did not induce a temperature rise, and as was previously stated, no lasting results were obtained.

Sutton[11] was apparently unaware of any previous work with artificial fever in the treatment of chorea, for she deduced from the use of phenobarbital that those patients who developed the most marked improvement were also those who had developed fevers, and thus came to the conclusion that it was the fever rather than the drug which was the beneficial agent. Hence, she instituted experiments using typhoid vaccine intravenously. A general improvement followed, and in some cases, complete recovery.

Since the completion of the present report, there has appeared an article by Capper and Bauer[12] in which they reported excellent results from the use of typhoid vaccine—an observation which coincides with that of Sutton.

Coming now to the subject immediately under consideration the work at the Kankakee State Hospital was based on the production of fever as a resultant of the intravenous injection of typhoid vaccine. In spite of the small number of cases so treated, the end results indicate that typhoid vaccine is of definite value in the treatment of acute chorea, and of doubtful value in that of the Huntington's type of chorea.

A brief description of each case follows:

Case 1. Classification—Psychosis with Huntington's Chorea.

Admitted here on October 17, 1931. White male, aged 48 years. The physical examination revealed no gross abnormal findings in either the heart, lungs or abdomen. The blood pressure was 130/80. The pupils were regular and equal but stationary to light changes. All deep reflexes, although equal, were exaggerated. The laboratory examinations, including a blood Wassermann and a Kahn on both the blood serum and the spinal fluid, were negative. There were choreiform movements of all extremities, with almost constant facial grimaces. Patient was presented and classified as a case of psychosis with Huntington's chorea.

Treatment consisted of ten injections of typhoid vaccine in graduated doses, the initial one being fifty million. Following the first three temperature rises, a change was noticed in the patient's condition in that there was an almost complete cessation of the choreiform movements. He was able to perform tasks which he had been previously unable to do. The facial grimaces continued as before treatment. At the present time, one year after the discontinuance of treatments, the patient's condition has reverted back to the state existing before treatments. Although he did show improvement, this was not lasting, or complete.

Case 2. Classification—Psychosis with Huntington's Chorea.

Admitted here on October 7, 1932. Colored male, aged 46 years. The physical examination showed no gross abnormalities in either the heart, lungs or abdomen. The blood pressure was 120/80. The neurological examination showed absent knee jerks, and pupils, although regular and equal, reacted sluggishly to light changes. All laboratory examinations, including spinal fluid, were recorded as negative. There were choreiform movements of all extremities. The patient was classified as a case of psychosis with Huntington's chorea.

Treatment consisted of ten injections of typhoid vaccine, given intravenously, twice a week. Although the patient himself was elated with the results, practically no change was noticed in the chorea when the treatments were discontinued. However, at the end of a year's time, there has been a complete cessation of the choreiform movements.

Case 3. Classification—Psychosis with Huntington's Chorea.

Admitted here on August 26, 1932. Colored male, aged 44 yars. The physical and neurological examinations showed nothing abnormal except almost constant choreiform movements of all extremities. The blood pressure was 130/80. Classified as psychosis with Huntington's chorea by the medical staff.

Treatment consisted of fifteen injections of typhoid vaccine, given twice a week. After a year of observation there has been noticed no change in the chorea.

Case 4. Classification — Undiagnosed Psychosis (Huntington's Chorea).

Patient was admitted here on July 21, 1933. White male, aged 48 years. The blood pressure was 120/80. Physical examination showed no gross abnormal findings. Neurologically patient presented equal but hyperactive knee jerks. All laboratory examinations including a blood Wassermann and a spinal fluid examination, were negative. Five years before his admission to the Kankakee State Hospital, his condition had been diagnosed as Huntington's chorea.

Treatment consisted of eight fever treatments, with temperature elevations to 103 degrees F. There was a complete disappearance of all choreiform movements at the end of the sixth treatment. The patient stated that that was the first time during the past five years that he had been free from the choreic movements.

The preceding cases were classified by the medical staff of the Kankakee State Hospital as being of the Huntington's type of chorea. In one of these four cases, there was no change in the patient's condition; in the second instance, a temporary improvement was observed; in the other cases (representing one-half of the treated cases) there was a complete disappearance of the chorea. Even a slight mitigation of the symptoms, while it lasted, was a source of comfort to the patient.

The remaining two cases, which were treated by other physicians, were obtained from the records of the Kankakee State Hospital and are included because of the remarkable and rapid disappearance of the chorea in contrast with the slower improvement noticed in Huntington's chorea. Case 5 was completely relieved of all symptoms after the second temperature rise. In case 6, the improvement, although not so rapid, was as complete as that obtained in Case 5.

Case 5. Classification—Without Psychosis, Sydenham's Chorea.

Admitted here on March 16, 1932. White female, aged 15 years. Physical examination revealed no gross abnormalities in either the lungs, heart or chest. Blood pressure was 110/80. Neurological examination showed no abnormal findings other than regular and equal dilated pupils that reacted well to light changes and in accommodation. All deep reflexes were exaggerated. All laboratory examinations were indicative of no pathology. The patient had coarse, purposeless movements of all extremities, especially of the uppers. Patient was presented and classified as being without psychosis, Sydenham's chorea.

Treatment consisted of seven injections of typhoid vaccine, given twice a week. Following the second temperature rise, there was an abatement of the choreiform symptoms. At the present time patient has left the hospital, and has been free of all symptoms of chorea.

Case 6. Classification—Psychosis with other brain or nervous diseases, acute chorea.

Admitted here on August 15, 1931. White male, 22 years old. Physical examination showed nothing abnormal in the heart, lungs or abdomen. Neurological examination showed dilated but regular and equal pupils. All reflexes were exaggerated but equal. Presented and classified as psychosis with other brain and nervous diseases, acute chorea.

Treatment consisted of 32 injections of typhoid vaccine. After the first twelve injections, all major symptoms of chorea had disappeared, and all that remained was an occasional facial grimace. Upon the patient's insistence, treatments were continued. Patient was discharged free of all symptoms, and has remained so.

Only the salient points in each case history have been given here. All six patients presented the symptoms of chorea, two those of an acute chorea, and four the symptoms of chronic chorea. All of the patients have been under observation at this Hospital, for over a year, or at home for over that length of time (case 4 excluded).

CONCLUSIONS:

1. Six patients, four suffering from the Huntington's type of chorea and two of Sydenham's have been treated by fever therapy, which was induced by the intravenous injection of typhoid vaccine.

2. In the cases of Sydenham's chorea, there was a complete recovery from the chorea.

3. Regarding the more chronic chorea, two

patients showed a recovery, one a temporary improvement, and one no change.

4. It follows that fever therapy is of definite value both for the acute and the chronic forms of chorea.

Case 5 has been included in this report through the courtesy of Dr. Hunter of the Kankakee State Hospital, and Case 6 through the courtesy of Dr. Cohn of the same institution.

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ACQUIRED EXTERNAL FECAL FISTULAE INVOLVING THE ANTERIOR OR LATERAL ABDOMINAL WALL

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A fistula is an abnormal channel of communication existing between two hollow viscera or between a viscus and the surface of the body. Fistulae are congenital or acquired: the latter being pathological, traumatic, or post-operative. By some clinicians, fistulae are classified according to their anatomical location, duodenal, intestinal, colonic, etc., by others according to the nature of their discharge, salivary, urinary, fecal, etc. The acquired post-operative fistulae discussed in this paper, we designate as external, because they have an outlet on the surface of the body; as fecal, because they communicate with the alimentary canal and discharge intestinal secretions and feces. They are all fistulae of the small or large intestine; no segment of the alimentary canal between the duodenum and the anus being immune. (Mayo, Christopher.*) Such abnormal communications between the lumen of the gut and the abdominal wall as are created deliberately or established intentionally by the surgeon, to put a gut-segment at rest, to drain the bowel, to introduce fluids and nourishment, to relieve intestinal obstruction will receive nothing more than passing mention in this paper.

Most of the external abdominal fistulae herein considered are post-operative in occurrence. A few occurred spontaneously resulting from some abdominal lesion, such as a localized abscess secondary to a perforating gastric or duodenal ulcer, to a suppurative appendicitis in which operation has been unduly delayed, to a malignant disease of the intestine, etc. Fecal fistulae are most depressing and demoralizing to patients; such patients being prone to exaggerate to themselves their more or less fancied repulsiveness. A fecal fistula is often a most formidable and difficult condition to overcome, taxing to the utmost the ingenuity of the medical attendant and demanding the best surgical talent available. Owing to lack of adequate rest from the associated discomfort and to the quantity of nourishment lost by food escaping from the fistulous opening, these patients lose in weight. They soon learn that food-taking is followed by increased peristalsis and increased pain and discomfort consequent to the escape from the fistula of irritating bowel contents.

Fistulae are grouped as internal, external or combined. The external include all cases in which the fistulous tract or tracts discharge either by one, two or more openings on the external surface of the body; the internal, in which there is an abnormal communication between the lumina of two or more hollow viscera, those in which the fistulous tract has only internal outlets; the combined, in which the fistulous tract not only establishes a communication between two hollow viscera but also has an external opening either in the vagina, the abdominal wall or elsewhere. The discharge, may be intermittent, may be continuous; may be scant, moderate or profuse; may be gas alone; may consist of bile, pancreatic juice or intestinal contents. In 1923,

*Bibliographical references are arranged in alphabetical order.

I reported a case of intestinal fistula following a cholecystostomy in which tape-worm segments were expelled through the fistulous opening. I have since seen two similar cases. (Heineck)

The external orifice, mucous membrane, rarely cutaneous, almost always is surrounded by an excoriated, ulcerated, painful and often partially digested area due to the irritation of bile, pancreatic secretion and partly digested intestinal contents. Often the nature of the discharge enables one to determine readily the site of the internal orifice or orifices of the fistulae. The external orifice may be small, may be large, may be pin-head in size. In fistulae secondary to diverticulitis, the opening may not be larger than a knitting needle.

Determine the character, size and location of the inner fistular orifice and the approximate length, course, chronicity, tortuosity, ramifications and nature of the fistulous tract by taking an x-ray picture of the fistular region after ingestion of a barium meal and injection of a barium enema, supplemented by the injection in the fistulous tract of an opaque medium; an opaque catheter inserted in the fistula may prove serviceable. Administration of aniline dyes in the food or per rectum and their subsequent appearance in the fistulous discharge further establishes the diagnosis. Exclude the presence of a sinus infected with colon bacilli and giving rise to drainage resembling fecal material. Aniline dyes will aid you. Fistulae connected with some part of the ascending, transverse or descending colon are uncommon and the discharge that accompanies them is less liquid and usually less irritating. Mayo reports a case of fecal fistula developing after an appendectomy. This fistula that had remained unclosed for fifteen months, had two internal colonic openings, one in the hepatic flexure, the other in the transverse colon. It was closed permanently by bringing the two openings close together and closing them. External cecal fistula, the result of operations for appendicitis, is by far the most common type of fecal fistula of the colon. Of 264 cases of fecal fistulae observed at the Mayo clinic, over one-third, ninety-eight cases, were shown by Rankin and Gorder to be due to appendicitis, acute and gangrenous, or appendiceal abscess. (Rankin, et al.)

Fistulae may have a sinuous course. The internal and external orifices or both may be single, double, multiple. These orifices vary in size and in outline. In some cases, the mucous membrane of the gut is adherent to the skin; in many, a fibrous tract or sinus connects the gut with the skin opening; while in others the gut opens into an abscess cavity connected with the surface. In cases due to trauma, as in gunshot wounds, the fecal fistula may be complicated by hemorrhage, by compound fractures, etc.

Etiology. Fistulae occur at all ages and in both sexes and in connection with various abdominal lesions as from the spontaneous rupture or the surgical evacuation through the abdominal wall of a localized abscess resulting:

1. From a perforating or perforated duodenal or gastric ulcer.

2. From the rarer types of perforating ulcer of the alimentary canal; typhoid, tubercular, dysenteric, carcinomatous, etc.

3. From an infected appendix for which surgical relief has been unduly delayed. Deaver reports 200 cases of fecal fistulae developing in 4,063 cases of acute appendicitis. This represents 5 per cent. Pus was present in varying amounts in every case of this series and required drainage. In a large percentage of these cases, ulceration of the cecum or terminal ileum had been observed during the primary appendectomy operation. It is generally admitted that cases with a perforation at the base of the appendix show a definite tendency to the development of fecal fistula. Gibson in 1,583 cases of appendicitis found 19 cases of fecal fistula, 1.3 per cent. Muhsam analyzed 1,253 operations for appendicitis. In the first 441 cases, there were 78 fecal fistulas; in the last 815 there were only 54. In 2,841 consecutive cases of acute appendicitis treated at the Mount Sinai Hospital, N. Y., 1.1% developed fecal fistulae. "It is most frequently seen in cases of acute gangrenous appendicitis with perforation or with abscess in which the cecal or ileal walls are involved in the inflammatory process, but it may be due to poor surgical procedures. (Colp.)

4. From a localized infection in close proximity to some intestinal loop, when the purulent material is not promptly evacuated by the surgeon.

5. From malignant disease of the intestines: cecum, colon, sigmoid, etc.

6. From strangulated intestinal hernia, irrespective of anatomical type or location. (W. D. Haggard) says that a small percentage of cases of strangulated hernia, *not operated upon,* will recover with a fecal fistula and artificial anus. He reports 5 such cases; 4 were in women; 1 in a boy of six. Three of the hernias were femoral, two inguinal; two ruptured spontaneously; three were opened for abscess; all drained fecal matter. All patients recovered following operative treatment of the fistula.

7. From diverticulitis, "The abdominal wall is very rarely perforated by infection. Such a condition, however, accounts for a small percentage of the cases in which fistulae occur in the lower abdomen, secondary to diverticulitis." (Mayo.)

8. From accidental or operative injury to the abdominal wall and abdominal viscera: penetrating and perforating stab and gun-shot wounds in military and civil life. P. Luckhardt-Mummery reports among other interesting cases of fecal fistulae, one in which there were two internal fistulous openings, the upper one, in the jejunum (fecal), the lower one, in the bladder and ileum, urine and feces escaping from it. Fistulae have followed operations for intestinal obstruction, volvulus (Constantini), for pelvic infections in the female.

Fecal fistulae have followed the slipping of improperly, carelessly applied sutures; have also followed the premature absorption of catgut suture material. Minimize the incidence of these mishaps by encircling the base of the appendix with a ligature that penetrates but does not perforate the appendiceal wall. Supplement this ligation by a few catgut stitches that enfold and bury the appendiceal stump in a small cecal pouch.

A large number of the fecal fistulas that have come under my care occurred after abdominal operations performed on patients that had, at some previous date, been laparotomized. These were accidents of commission; the overconfident operator in opening the abdomen had carried his incision into a loop of gut adherent to the abdominal wall either at the incisional scar or close to it. Another condition fraught with danger met with in reopening abdomens is the presence of adhesions, inflammatory in nature, binding loops of gut to one another or to the parietal peritoneum. In separating these adhesions, the intestinal serosa is frequently injured, and if the gut be perforated, be torn, and these injuries are not suitably repaired, a fecal fistula may result. I have seen cases due to this cause and have successfully treated a number of them by the method hereinafter described.

Treatment. Many fecal fistulae are operative or post-operative in origin and are due to errors of commission or omission on the part of the surgeon. (Erdmann.) A careful study of the etiological factors previously enumerated leads one to conclude that the incidence of fecal fistulae can be much lessened.

a. By timely operative relief of all abdominal conditions that call for surgical intervention. The diagnosis being established, or better the indication for operative relief being present, do not delay. Among the unfortunate sequelae of appendicitis, fecal fistulae occupies the first place. (Baldwin.) Howard A. Kelly quotes five surgeons as having respectively 3.5%, 5%, 18%, and 6.6% of fistulae in their appendectomies.

Appendicitis, ectopic pregnancy, intra-abdominal pus collections, strangulated hernias, perforations of the intestines, irrespective of type or location, for all of these, immediate operative relief is imperative.

b. By avoiding hurried operating, by avoiding undue haste. It is not that operations should be prolonged but they should be performed in the shortest possible time consistent with safety, accuracy and thoroughness. In pelvic surgery, the danger of perforating the gut should lead one to be most gentle in the separation of adhesions, and to avoid rough surgical manipulations.

c. By securing a good exposure of the operative field, employing incisions adequate in length, having proper illumination and discarding silk suture material and avoiding needless rough handling of inflamed intestines. Sloughing of a portion of gangrenous cecum is not an uncommon factor in producing fecal fistula; hence, in operating upon patients with acute gangrenous appendicitis, intestinal obstruction, etc., the intestines, especially the cecum, should be approached and handled with great care. The same precaution must be observed in operating upon a strangulated hernia. Crile advises that no gauze or drain be left in contact with the

cecum. Avoid silk as buried suture or ligature material.

d. By separating and dividing inflammatory abdominal adhesions, with care and great gentleness, and by peritonizing when possible all denuded or eroded gut surfaces.

e. By endeavoring to prevent such relatively avoidable accidents as slipping of ligatures, premature absorption of sutures, erosions of the gut due to improperly applied, faulty, rigid or prolonged drainage, improper closure of perforations of the intestine, and especially by being careful in opening the abdominal cavity not to cut into a loop of gut adherent to the abdominal wall. This latter accident most frequently occurs in operating on patients who have been previously laparotomized. Therefore, in abdominal sections, be most careful in incising the parietal peritoneum.

f. By not attaching a loop of gut to, or enclosing it in, the abdominal wall, by the sutures that close the latter.

Actual treatment of the fistula with the view to permanent cure is of two kinds: operative and non-operative. To intelligently treat one of these cases, it is well to have a detailed knowledge of the characteristics of the case at hand. These being known, one can more judiciously select the appropriate line of treatment. All methods count successes and register failures. This is confirmed by the experience of all clinicians.

As about eighty per cent. of these fistulae heal spontaneously, one resorts to their operative closure only after the patient and long-continued employment of accepted methods of non-operative treatment have proven unsuccessful. If the patient receives adequate nourishment, if he does not show signs of malnutrition, opportunity should be given for spontaneous healing and operation deferred. Conservative methods are so frequently attended by success that in the absence of urgency, one should wait several months before proposing a radical operation. Prolonged conservative treatment in these cases has the advantage that during the preoperative period the thickening, infiltration and edema of the mesentery disappears and thus, the latter thereby regains much if not all of its normal flexibility.

The type of fistula in which the fistulous opening comes to the parietal peritoneum without an intervening cavity gives the most unfavorable prognosis. The higher the leak, the more serious it is. A fistula high up in the small intestine may cause death from inanition; therefore, such fistulae call for early surgical relief. Other factors influencing the prognosis are the resistance of the patient, the volume of pancreatic juice in the intestinal secretion, the intra-intestinal pressure, the persistence and thoroughness of treatment, etc.

In Deaver's series, 73 (37%) of the fistulae healed spontaneously, 97 cases (48.5%) required operative repair; 29 patients refused operation. The longest duration of a fecal fistula in Deaver's series without operative relief was seven years. In 60% of the cases, simple inversion of the fistulous opening by a purse string linen suture reinforced by an additional suture line was all the surgery necessary. Fifteen (15%) required an ileocolostomy to short-circuit the affected bowel. Twenty-three (23%) presented multiple fistulae or a very large fistular opening which could not be treated by simple surgery. Eighty (80) of the 97 cases operated on were discharged perfectly healed.

The following non-operative method of treatment has proven most successful in our hands and we feel that it deserves extended use.

1. A morning and evening enema sufficient in volume to not quite fill that portion of the gut distal to or below the fistular opening, taking care that none of the enema-fluid escape through the abdominal opening. Thereby, the voiding of the intestinal contents through the natural channels is assisted, the fistular discharge minimized and the irritation of the skin lessened. We have not felt the necessity in cases of this nature, to limit the patient to liquid foods. On the contrary, we urge that the patient partake of a generous and substantial soft diet as it is of the greatest importance that his strength be maintained.

2. Protection of the skin-area surrounding the external fistulous opening and also of the fistulous crater with gauze saturated with 10 per cent. peptone solution. Be careful not to plug the fistulous tract. To neutralize the alkalinity of the intestinal juice, it is well to inject at least three times daily, oftener if feasible, a decinormal solution of H C l in the fistulous tract. We have found 10 per cent. peptone solution protective and soothing to the excoriated skin sur-

face. It is important that the dressing be frequently changed. If the skin be non-protected, by this or a similar solution, it is macerated by the irritative and destructive action of the intestinal juices.

When conservative measures have been faithfully and intelligently tried and proven unsuccessful, operative measures are in order. The careful preliminary preparation of the abdominal skin and of the patient contributes to the successful outcome of the various operative measures employed. See that your patient's resistance is at its best. Usually the closure of these fistulae is obtained by a simple operative procedure but at times relief is effected only by means of a complicated intervention.

The preliminary preparation of an undernourished patient with fecal fistula is most important because the operation may and often does resolve itself into a major operation. One should always ascertain that there is no bowel obstruction distal to the site of the fistular opening. One of the most annoying, most disagreeable feature of a cecal and in fact of all fecal fistulae is an excoriation of the skin, productive of masses of granulation tissue surrounding the opening on the abdominal wall. Frequently, the entire side of the abdomen is found in this painful state. This condition of the skin makes closure difficult. Highly satisfactory results frequently attend the combined employment of soothing ointments spread over the involved area and a water or electric suction pump connected to a catheter with several added openings the tip of which is inserted into the fistulous tract as far as possible. By means of this continuous suction, the overflow over the abdominal wall of irritating fluids is markedly lessened. The intestinal juices quickly permeate, quickly undermine any layer of ointment, paste or paraffin. In the non-operative treatment and also as preparatory treatment to operation, I instruct the nurse to keep in constant contact with the abdominal fistular orifice and with the fistulous tract gauze saturated with a ten per cent, peptone solution, and also to inject frequently into the fistula a deci-normal solution of hydrochloric acid. The latter solution to a certain extent neutralizes the alkalinity of the pancreatic juice, furthermore, the latter expends itself on the peptone solution instead of on the abdominal wall.

It is essential to carefully aseptisize the abdominal wall and also to suture the fistulous opening thereby avoiding leakage into the peritoneal cavity. Some operators open the abdominal cavity to one side of and well away from the fistulous opening; others circumscribe freely by two elliptical incisions the perforated zone. With the parts well exposed, completely free the gut and fistula in one piece. Resect the fistulous tract. If the opening in the gut be small invert it, and suture the intestine along its transverse axis to avoid narrowing of the channel. A double line of suture is advisable to avoid leakage and to prevent premature detachment or absorption of sutures. This is very simply effected and in by far the largest number of cases, as shown in the accompanying table, meets the indications.

In Rankin and Gorder's series of 264 cases fecal fistulae, the following 379 operations were performed. There were 27 deaths, peritonitis 16, bronchopneumonia and inanition, 3, vesico-intestinal fistula 8.

Simple Closure	189
Resection	60
Colostomy	22
Ileocolostomy	11
Ileosigmoidostomy	3
Cesosigmoidostomy	1
Colocolostomy	2
Cecostomy	1
Ileostomy	11
Appendicostomy	1
Lateral anastomosis of loops of bowel (ileum)	8
Closure of colostomy	6
Dilatation and curetment of sinus tract	35
Incision and drainage of sinus tract	9
Excision and drainage of sinus tract	4
Dilatation and drainage of sinus tract	1
Incision and dilatation of sinus tract	2
Irrigation of sinus tract	5
Exploration	8
Total	379

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GAS-BACILLUS INFECTION OF THE EXTREMITIES—REPORT OF TWO CASES

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DE KALB, ILL.

The following two cases of gas-bacillus infection of the extremities are reported to emphasize the value of adequate doses of gas-bacillus antitoxin combined with radical surgical drainage of the infected tissues, in saving for useful function, extremities which might otherwise be radically amputated in attempts to avoid fatality.

While serving my internship in a large general hospital, within recent years, it was my experience to aid in the handling of several gas-bacillus infections of the extremities. No gas-bacillus antitoxin was then available for prophylaxis or treatment; radical amputations were done in all cases and it was our misfortune to have all of these cases terminate fatally.

The apparently widespread impression among the profession is that well established gas-bacillus infections of extremities require prompt, radical amputations, and that even with such procedure, the mortality is very high. A recent prominent work on surgery expresses this opinion,[1] and such was my belief previous to handling these two cases. However, encouraged by the report of Larson & Pulford[2], on the curative value of gas-bacillus antitoxin, I treated these two cases here reported, the only gas-bacillus infection which I have encountered in private practice, with prompt radical surgical drainage, accompanied by gas-bacillus antitoxin in adequate dosage.

In these two cases the incubation periods were short and the infections apparently virulent, but recovery, and eventually good function of the injured extremities resulted in each case.

Case 1. M. C., a healthy seven-year-old white school girl, fell May 22, 1932, from rafters 10 feet high, down onto a machine-shed floor covered with finely pulverized dry manure. On admission to St. Mary's Hospital, about 30 minutes after the accident, the lower articulate surface of the right ulna was seen extruding through a wound of its own making on the volar surface of the wrist. The right radius was obviously fractured about 2 inches above the wrist with anterior bowing deformity of the lower forearm. Under ether anesthesia, debridement of skin and subcutaneous tissue around the protruding ulna was done, but tendons so exposed, prevented further debridement. The exposed ulnar tip was cleansed and replaced and the fractured radius deformity readily corrected. The wrist wound was left open, dressed moist, and moulded plaster strips were used to maintain the forearm in proper position.

The patient was given 1500 units tetanus antitoxin, combined with 1000 units B. perfringens antitoxin and 1000 units Vibrion septique antitoxin, and sent to her home in the country. She was not seen until 40 hours later, May 24, when she presented a fever of 102°, malaise and rapid pulse. The wrist wound exuded a profuse sanguinous gray, purulent, discharge bubbling with gas, and of foul odor. Tissue crepitation and swelling were marked in the forearm, but the former was sharply limited by elbow fascial structure and in fact, never progressed above the elbow. The patient was re-hospitalized, and radical through and through drainage of the forearm at several points was done at once. While incising skin and tunnelling through muscle bundles were being done, foul gas escaped from the tissues. Smears of the wrist wound discharge showed typical gas bacilli in abundance. Suitable culture facilities were not available.

Simultaneous with surgical treatment, the first therapeutic dose of gas-bacillus antitoxin was given intramuscularly, containing ten thousand units of B. Perfringens and of Vibrion septique antitoxin. This was repeated at intervals of 8 to 10 hours for four doses, and marked reduction of gas bubbling from the lower forearm wounds followed each dose. Within 12 hours after the fourth dose was given, nearly all gas bubbling ceased.

Until June 2, temperature ranged up to 101° each day and up to 104° one day, but no gas came from the wrist wound or other wounds after May 28, by which date swelling had much subsided. Edema of the arm to the axilla had been present, but no gas was palpated above the elbow, and the edema of the arm had almost disappeared by June 5. Drains were all removed by June 2. Hot 1 to 5,000 potassium permanganate solution fomentations were used from operation until June 5. About May 30, 6 days after operation, through and through irrigation of drained muscles was begun with Dakin's solution, and large fascial sloughs were washed out daily for several days.

Having been in the hospital 19 days, by June 12 the patient was sent home. Her temperature had been normal for three days and the forearm was draining thin pus from a drainage wound near the site of the radius fracture. Painless crepitation of the radius fragments

was evident and pressure near the fracture site caused thicker yellow pus to exude from the above-mentioned drainage wound. Strangely enough, the original wound over the lower end of the ulna was well healed, and no arthritis of the wrist seemed to exist.

Throughout the summer, repeated hyperextension of hand and fingers was necessary to combat the strong tendency to shortening of flexor tendons overlying the osteomyelitic radius in the forearm.

In October, 1932, the distal metaphysis of the ulna was resected to prevent wrist deformity, due to its growth in the presence of osteomyelitic destruction of the lower epiphysis of the radius. This operative wound healed without infection from the neighboring osteomyelitic sinus two inches away.

In November, the sequestrum in the radius was removed and rapid healing ensued. The patient was dismissed January 6, 1933, with a fair amount of wrist and hand function which has improved much since that time. No flexion deformity of the fingers is now present; due to some tendon involvement near the wrist, the index finger cannot be well flexed at the proximal interphalangeal joint. The wrist joint and forearm are strong and their function perfect, although they are much scarred and the distal end of the ulna is gone. Due to its lower growth centers being absent, the right forearm is about 1½ inches shorter than the left one.

Case 2. W. S., aged 42 years, a strong, healthy white, male field laborer, for the Midwest Canning Corporation, was admitted to the De Kalb Public Hospital June 24, 1933, 30 minutes after having been thrown about 10 feet from a wagon by a runaway team. His full body weight had driven his flexed left elbow into the ground, producing a posterior dislocation of radius and ulna on the humerus. The medial humeral epicondyle had compounded through a macerated soiled wound on the medial aspect of the forearm just below the elbow joint. Showers of fine field dust fell from the patient's clothing and skin as he was disrobed.

Debridement was done at once, but proximity of the elbow joint cavity, ulnar and median nerves and branches of the brachial artery prevented this being done as thoroughly as desired. The dislocation was readily reduced, and easy passive elbow motion resulted. X-ray showed no fracture.

The patient was given two intramuscular doses at once, each of 1500 units antitetanic serum combined with 2000 units of gas-bacillus antitoxin. On June 25 a third such prophylactic dose was given, totaling a combined gas-bacillus antitoxin dose of 6,000 units.

The flexed elbow was kept elevated and treated with hot potassium permanganate solution fomentations. Marked swelling of elbow and forearm remained after reduction, and the patient's temperature ranged from 101° to 104.8° for 36 hours, at the end of which time gas crepitation in the forearm was detected. Smears of the developing sanguinous, grayish pus showed gas bacilli and a dose of gas-bacillus antitoxin (10,000 units B. perfringens and 10,000 units Vibrion septique), was given intra-muscularly at once, and radical surgical drainage of the forearm accomplished; here as in the first case, fascial structures about the elbow prevented gas advancement above that region.

The arm was edematous up to the axilla for several days after June 26 (date of surgical drainage), but no gas appeared above the elbow. The wound of compounding bubbled gas moderately and continuously and for several days was lined with grayish, black slough. By 9:00 p. m., June 27, the patient had received his fifth and last therapeutic dose of gas-bacillus antitoxin and on June 28 he said that after the previous midnight he ceased to feel any gas bubbling from the elbow wound.

Temperature ranged from 101° to 103° through June 30. All drains were removed July 1, and through and through irrigation of drainage tracts with 1-5,000 potassium permanganate solution was carried out daily for some days. Rapid recovery ensued.

The patient was enthusiastic about early active motion of the extremity and left the hospital July 7 with the arm in a sling. He assumed light factory work August 4, his wounds all having healed before then. He was dismissed early in October with about 25% loss of range of elbow motion, but with a strong vigorous extremity, and no loss of hand, forearm or shoulder function.

The results in these two cases and our previous experience with gas-bacillus infection seem to justify the following conclusions:

1. Adequate debridement of dirty wounds, as always, the most important prophylactic measure in preventing gas-bacillus infection, may be hampered by involvement of important structures in such wounds, so that antitoxin must be relied upon as aid in these cases.

2. So-called prophylactic doses of combined tetanus and gas-bacillus antitoxin, as marketed, are lacking in sufficient gas-bacillus antitoxin to prevent subsequent infection.

3. Radical surgical drainage of infected extremities coupled with adequate dosage of gas-bacillus antitoxin is of life saving value and may allow the saving of extremities, with later good function, which would otherwise have been amputated.

4. One or more so-called therapeutic doses of gas-bacillus antitoxin (as marketed), given soon after the infliction of a dirty wound might be really prophylactic in value in cases such as those reported here, an opinion confirmed by statistics of Coenen, quoted in Lewis' Practice of Surgery.[1]

131 East Lincoln Highway.

REFERENCES

1. Lewis: Practice of Surgery, Vol. 1, Chap. 8, P. 28.
2. J. A. M. A. 94: 612-617, 1930.

Society Proceedings

BUREAU COUNTY

RESOLUTION ON DEATH OF DR. BEN RUSSELL

WHEREAS: Dr. Ben Russell was a man of sterling character; was an honored and respected citizen and member of Society, and,

WHEREAS, he was a faithful and sincere worker in his chosen profession and a member of the Bureau County Medical and of the Illinois State Medical Society,

WHEREAS, he has been called to his long rest.

Be It Resolved, that we members of the Bureau County Medical Society, herein assembled, do offer to the relatives and friends, our most sincere sympathy; that we assure them that our brother physician and associate will be missed by us as the years go by, and

Be It Further Resolved, that the resolution be spread among the minutes of this Society and that a copy be sent to the Illinois Medical Journal.

CHAMPAIGN COUNTY

The Champaign County Medical Society met April 12, 1934, at the Urbana Lincoln Hotel. Dr. James Carr, Professor of Medicine at Northwestern University, addressed the members on Cardiopathies. There were eighty members present and twenty guests from surrounding cities including Danville, Decatur, White Heath, Bement, Farina, and Effingham.

There were two amendments adopted to the By-laws of the Society regarding the care of indigents and contract practice.

W. F. LAMKIN, M. D., Secretary.

Meeting May 10

Dr. Joseph Miller of Chicago gave one of his celebrated "Ward Walk" talks before the Champaign Medical Society, Thursday evening, May 10. About sixty of the eighty-four members were present and were highly entertained and instructed.

Dr. Carroll Stuart, from the University of Illinois College of Medicine, gave a talk Tuesday evening, May 22, to the Medical and Dental Staff of the Burnham City Hospital, and invited friends, on "Diagnosis and Treatment of Early Malignancies." It was most instructive, bringing out and emphasizing the very latest regarding the cancer situation.

W. M. HONN, M. D.
President, Champaign County Medical Society.

MACOUPIN COUNTY

Macoupin County Medical Society met in adjourned session January 23, 1934, Carlinville, Illinois, and was called to order by President A. H. Hunter, Staunton.

Twenty-seven members and visitors were present.

Dr. Frank J. Jirka, Director, State Department of Public Health, gave an address on "Amebiasis and Tularemia."

Dr. Robert H. Woodruff, Medical Assistant Division of Vital Statistics, gave an address on "Mortality Trends and Vital Statistics."

Dr. Howard J. Shaughnessy, Chief Division of Diagnostic Laboratory, gave an address on "The Doctor and the Diagnostic Laboratory."

Mr. Robert A. Wait, Decatur, gave an address on "Calcium Requirements and Calcium Feeding."

The Relief Committee gave its report.

A rising vote of thanks was given Dr. Frank J. Jirka, Dr. Robert H. Woodruff, Dr. Howard J. Shaughnessy and Mr. Robert A. Wait for their excellent addresses.

On motion the Society adjourned to meet at Carlinville in March.

Meeting March 27

Macoupin County Medical Society met in regular session at the Ariston, Carlinville, Illinois, Tuesday, March 27, 1934.

Dr. D. C. Todd of St. Louis gave an interesting address on "Medical Fraternity on Trial." This was an able lantern illustrated address dealing with the economical side of the general practice of Medicine. A large number of physicians were present and the paper was thoroughly discussed by those present.

The Relief Committee which has been working nearly a year gave a report in which they stated that a contract had been signed with the Illinois Relief Administration which permitted all physicians in Macoupin County signing this contract to participate in the benefits of it.

This was the most outstanding and one of the most interesting meetings in the history of the Society.

The following officers were elected for the coming year:

President—Dr. A. H. Hunter, Staunton.
Vice President—Dr. A. C. Goff, Staunton.
Secretary-Treasurer—Dr. T. D. Doan, Palmyra.
Delegate—Dr. T. D. Doan, Palmyra.
Alternate Delegate—Dr. A. H. Hunter, Staunton.

OGLE COUNTY

Ogle County Medical Society met at Mount Morris, Illinois, April 26, 1934. Dr. R. J. Hyslop, Freeport, gave a very interesting talk on "Fractured Pelvis and Complications," illustrated with lantern slides.

Dr. C. H. Watkins, Mayo Clinic, followed with a masterful presentation on "Agranulocytosis and Anemias." This developed many questions and discussion.

The thanks of the Society and our friends go to these men. DR. A. R. BOGUE, Secretary.

PERRY COUNTY

The Perry County Medical Society met in Du Quoin, May 3 and listened to the following program.

"Some New Developments in Endocrinology," by Dr. Daniel L. Sexton of the St. Louis University Department of Medicine.

"The Treatment of Empyema," by Dr. James L. Mudd of the Department of Surgery of Washington University.

Dr. Frank B. Hiller of Pinckneyville was elected delegate to the State meeting at Springfield.

Suitable resolutions were adopted deploring the death of Dr. Charles D. Center our State President-Elect.

H. I. STEVENS, M. D., Secretary.

ST. CLAIR COUNTY

THE PASSING OF CHARLES DEWEY CENTER

The St. Clair County Medical Society mourns with the Illinois State Medical Society in the loss of our President Elect, Dr. Charles D. Center and our sympathies are extended to the bereaved family.

It was not the hand of time that moved to stop the onward progress of Dr. Center but the hand of fate. He was in the midst of planning and expectations. He was planning as he had planned for years. He had much in store for organized medicine and the time was approaching when he expected the opportunity to present his plans that they might bear fruit; but the cruel side of man's invention has again stopped man's progress. We cannot recall or prevent but we can profit by the life he lived. Dr. Center leaves unwillingly an unfinished task, but peace rewards the man who does his best.

Organized medicine knew Dr. Center as a man of purpose, his great purpose was that every physician in the State of Illinois should know and receive the full benefits of organized medicine. In respect to him let us who are left do our part to bring into reality this purpose. This is our society's good-bye to Dr. Center.

A. M. Aszmann,
Charles S. Skagg,
T. Van Boyd,
O. M. McCann.

VERMILION COUNTY

At the May meeting of the Vermilion County Medical Society held jointly with the Ladies Auxiliary of the Vermilion County Medical Society, Dr. John R. Neal, of Springfield, was the guest speaker of the evening. He was accompanied by Mrs. Neal.

The following resolution presented by a committee appointed by the President, Dr. W. T. Snider, was to be sent to Mrs. C. D. Center as a letter of condolence, because of the sudden death of Dr. C. D. Center, President-elect of the Illinois State Medical Society.

Dr. Neal and others present at the meeting asked that a copy of the resolution be sent for publication in the Illinois Medical Journal.

Yours very truly,
A. R. Brandenberger, M. D., Secretary.

RESOLUTION

We the members of the Vermilion County Medical Society, recognizing our obligation to that peerless leadership which has correlated our component society with others to form the Illinois State Medical Society, and it, with other states, to form the American Medical Association, should pause and consider, the time and effort that this has taken.

Organized medicine requires and has always had able leadership, but there has never been a time when the grim reaper struck with a more deadly aim than when he selected a shining mark in the person of Dr. Charles D. Center, just on the eve of his induction into office, as President of the Illinois State Medical Society.

Dr. Center was a colorful figure. Fundamentally frank, fearless and fair, he naturally developed into a strong leader in whom his friends had implicit confidence. He went, not as one weary of life with its handicaps, but as one rejoicing in the contemplation of his own usefulness in the profession to which he did honor, and to the profession he loved to serve. He went as one ripe in experience and years, one who had filled the full measure of life, but remained keenly alive to the best interest of his profession.

By the death of Dr. C. D. Center, the State of Illinois has lost an honored citizen, the Illinois State Medical Society an able executive, the medical profession a conscientious worker, and humanity a friend.

With measured tread they carried him into the cheerless, voiceless city of the Dead. He has responded to his last call for aid, he has ministered to his last sufferer. His work is finished. The Great Physician of the Universe has called him home.

Words only confuse, but we beg of you to witness our pledge to remember him for his military bearing, admire him for his broadminded integrity, respect him for his candid and direct address, honor him for his unerring judgment, and love him for those sterling, soldierly qualities which marked him a man.

By Committee,
E. B. Coolley,
L. B. Russell,
C. E. Wilkinson.
A. R. Brandenberger, M. D., Secretary,
Vermilion County Medical Society.

WARREN COUNTY

The regular spring meeting of the Warren County Medical Society was held at Hawcock's Cafe, Monmouth, May 3, 1934. Following the dinner at 6:30, the first speaker introduced by the President, Dr. Ralph Graham, was Dr. Frank J. Jirka, Director, Illinois Department of Public Health, Springfield, who talked on the work of the Illinois Department of Health.

Dr. Jirka told of the many things the State Department is doing for the protection of the citizens of Illinois, and along the line of co-operation with medical societies and the practitioners of the State. All sub-departments and their individual functions were included in this report, and he also told of the research work the Department has undertaken more recently. A report of the State Health Department activities along the line of the Calmette method of immunizing infants against tuberculosis was given.

The second speaker was Dr. Max Thorek of Chicago, who gave a motion picture demonstration of his technique, and discussed the Electro-surgical removal of the gall bladder. This was a most interesting talk, and the pictures were unusually fine. Dr. Thorek showed many "still" pictures of gall bladder pathology, and discussed his operative procedure by which the gall bladder was removed, and closure made without drainage.

The Warren County Medical Society held its annual election, and Dr. W. A. Frymire, Monmouth, was elected president; Dr. H. S. Zimmerman, Cam-

eron, vice-president; and Dr. Chas. P. Blair, Monmouth, secretary and treasurer.

The meeting was attended by approximately 75 physicians of West-central Illinois and Eastern Iowa, physicians being present from more than fifteen counties.

CHARLES P. BLAIR, M. D., Secretary.

Marriages

Max Thomas Bolotin, Chicago, to Miss Mary R. Mann, of Shanghai, China, February 25.

Clarence G. Pool, Compton, Ill., to Miss Helen Schnuckel at New Orleans, March 27.

Henry H. Rubin to Miss Dorothy E. Liebling, both of Chicago, Dec. 31, 1933.

Florance L. Sullivan, Freeport, Ill., to Miss Magdelen Heinl of Chicago, April 5.

Personals

Dr. O. B. Nugent was invited to give a paper on "Ocular Surgery" before the Southwest Wisconsin Medical Society May 25. He addressed the Northwest Dental Society and gave his illustrated lecture on "Primitive India." He also gave an illustrated lecture on the "Holyland" to the Normal Park Lodge May 8.

The Fulton County Medical Society was addressed in Canton, April 18, by Dr. James P. Simonds, Chicago, on "Nephritis."

Dr. John T. Murphy, Toledo, addressed the Chicago Roentgen Society, May 10, on "Bone Tumors."

Dr. Carl Beck was honored with a reception, March 25, in observance of his seventieth birthday.

Dr. Meyer Solomon, Chicago, discussed nervous breakdowns before the Will-Grundy County Medical Society, April 11.

At a meeting of the Iroquois County Medical Society, April 12, Dr. Philip Rosenblum, Chicago, spoke on "Convulsions in Children."

At a meeting of the Kane County Medical Society in Aurora, April 11, Dr. Irving F. Stein, Chicago, discussed "The Use of Obstetric Forceps."

The Chicago Tuberculosis Society was addressed, May 10, among others, by Dr. John B. O'Donoghue on "Surgery of Pulmonary Tuberculosis."

Dr. Herbert N. Rafferty, Robinson, among others, addressed the Crawford County Medical Society, April 18, on "Multiple Fractures and Traumatic Epilepsy."

Dr. David C. Todd, St. Louis, recently addressed the Macoupin County Medical Society in Carlinville on the economic side of the general practice of medicine.

Dr. Walter W. Hamburger has been appointed clinical professor of medicine in the Division of Biological Sciences, University of Chicago.

At a meeting of the Franklin County Medical Society in Benton, April 26, speakers included Dr. Max S. Wien, Chicago, on "Relation of Dermatology to General Medicine."

Drs. George T. Palmer, Springfield, and George H. Vernon, Jr., discussed "Blood Sedimentation in General Practice" before the Christian County Medical Society in Taylorville, April 18.

At a meeting of the Jefferson-Hamilton County Medical Society in Vernon, April 12, Dr. James A. Warner, St. Louis, spoke on treatment of bacterial diseases.

Dr. George H. Weaver was elected president of the Society of Medical History of Chicago, May 2; Dr. David J. Davis, vice-president, and Dr. Irving S. Cutter, secretary.

Dr. Percival Bailey discussed "Peculiarities of Tumors of the Nervous System in Infants and in Childhood" before the Chicago Pediatric Society, May 22.

Speakers before the Chicago Pathological Society, May 14 included Dr. Emil T. Hoverson, Kankakee, Ill., on "Sedimentation Rate of Erythrocytes: An Explanation for Normal Daily Variations."

Speakers before the Bureau County Medical Society in Princeton, April 10, were Drs. Philip H. Kreuscher and Ernest E. Irons, both of Chicago, on backache and causes and treatment of chronic arthritis, respectively.

Dr. Clarence F. G. Brown, of Chicago, talked before the Shelby County Medical Society, Shelbyville, on the topics, "Treatment of Pneumonia" and "Some Clinical Aspects of Peptic Ulcer," Friday, April 27.

Dr. Maximilian Kern spoke at the Irving Park School on Wednesday, May 16, in observance of Health Day of Youth Week.

Dr. Richard Jaffé and Max Cutler have been invited to present a program on Cancer before the Will-Grundy County Medical Society at Morris on May 2nd.

Dr. Aaron Arkin will be the speaker at the Annual Luncheon of the Public Health Chairmen of the Illinois Federation of Women's Clubs at the Hotel Sherman on May 16.

Dr. Charles J. Drueck gave an illustrated lecture on "The Colon as a Focus of Systemic Infection" May 9 at the meeting of Will-Grundy County Medical Society.

The Medical Research Club of the University of Illinois held its meeting on May 9. Drs. T. Cornbleet, I. Schour, M. C. Smith were the speakers.

Drs. George deTarnowsky and Wilber E. Post gave the scientific program for the Henry County Medical Society at Kewanee on May 3 on "Differential Diagnosis and Treatment of Acute Abdominal Complaints" and "Nephritis."

Dr. Ralph C. Hamill gave an address on "The Handicapped Child and What Club Women Can Do About the Problem," at the annual luncheon of the Public Welfare Committee of the Illinois Federation of Women's Clubs at the Hotel Sherman on May 16.

Dr. Sidney A. Portis addressed the Rock Island County Medical Society, Rock Island, Illinois, on Tuesday, May 8, on the subject "The Medical Aspects of Gall Bladder Disease," with special reference to the pre- and post-operative management.

Dr. Max Thorek was invited to address the State Medical Society of Oklahoma at Tulsa, Oklahoma, May 22, on "A New Method of Obliterating the Gall Bladder by Electrosurgical Means."

News Notes

—The May dinner meeting held by the Paris Hospital for physicians of surrounding counties, was held at Oak Lodge, near Greenup, on May 10. It was attended by doctors and their wives, numbering about 175 people. The guest speakers were Dr. George Thomas Palmer and Dr. George H. Vernon, of Springfield, who discussed "Blood Sedimentation in General Practice."

—Speakers before the Chicago Orthopedic Club, May 11, were Drs. Marcus H. Hobart on "Myositis Ossificans"; Ferdinand C. Seidler, "Fracture Dislocation of the Shoulder," and Henry Bascom Thomas, "Undifferentiated Osteogenic Sarcoma."

—A symposium on cancer was presented before the LaSalle County Medical Society in La Salle, April 25, by members of the staff of Washington University School of Medicine, St. Louis: Drs. Isaac Y. Olch, James Barrett Brown and Nathan A. Womack.

—The Chicago Academy of Criminology was addressed, May 10, by Benjamin C. Bachrach, public defender of Cook County, on "Criminal Code and Indeterminate Sentence," and Prof. Harrison Dobbs of the University of Chicago, "The State's Responsibility in the Correctional Education of Children."

—Quo warranto proceedings were instituted, May 12, in the Superior Court, Cook County, by the attorney general of Illinois, questioning the right of the United Medical Service, Inc., 23 East Jackson Boulevard, to engage in the corporate practice of medicine under the provisions of the medical practice act of Illinois. The United Medical Service, Inc., was organized as an Illinois corporation and chartered, Dec. 15, 1930, with an authorized capital stock of $40,000. Dr. Joseph G. Berkowitz, formerly director of the Public Health Institute, is president of United Medical Service, Inc.

—A symposium on peptic ulcer was presented before the Sangamon County Medical Society, April 5, by Drs. Charles L. Patton, Frank N. Evans, Richard F. Herndon, Thomas D. Masters, Lawrence M. Hilt and David J. Lewis, Springfield.

—The Chicago Gynecological Society was addressed, May 18, by Drs. James E. Fitzgerald on "Management of Pregnancy in Women with Heart Disease," and Lester E. Frankenthal, Jr., "The Cardiac Patient in Pregnancy, with a Report of a Case of Coronary Occlusion During Pregnancy."

—The Peoria City Medical Society was addressed, May 1, by Dr. Chauncey C. Maher, Chicago, on "Treatment of Cardiac Edema." The society was addressed, April 17, by members of the state health department: Dr. Frank J. Jirka, amebiasis; Howard J. Shaughnessy, Ph.D., the doctor and the diagnostic laboratory, and Dr. Robert H. Woodruff, the doctor and vital sta tistics.

—The Adams County Medical Society held a banquet in honor of Dr. William W. Williams, Quincy, March 12, in recognition of his com-

pletion of fifty years in the practice of medicine. Dr. Nathaniel G. Alcock, Iowa City, presented a floral tribute on behalf of the University of Iowa College of Medicine, where Dr. Williams graduated in 1884, and Dr. Philip H. Kreuscher, Chicago, president, Illinois State Medical Society, presented a gold watch on behalf of the Adams County Medical Society. Dr. Williams has practiced in Quincy for thirty-nine years. On the scientific program, Dr. Alcock discussed resection of the prostate, and Dr. Kreuscher, backache.

—Election of officers was held at the annual meeting of the Chicago Tuberculosis Society on May 10. The following were elected: Dr. Ellis B. Freilich, president; Dr. Ralph B. Bettman, vice-president; Dr. Richard Davison, secretary.

—The cornerstone of the new $1,000,000 Chicago Policlinic Hospital was laid, May 11. The institution, formerly known as Henrotin Hospital, will be six stories high, with a capacity of 100 beds. The old hospital was erected in 1907.

—Chicago Society of Internal Medicine presented the following program May 28: Relief of Thyrotoxicosis by Thyroidectomy, Dr. W. C. Buchbinder; Rheumatic Heart Disease in Children, Drs. Stanley Gibson and Edward Denenholz; Hypertension and Nephritis, Dr. Louis Leiter; The Neutropenic State, Dr. Richard H. Jaffé, and Amebiasis, Dr. James A. Conner.

—The annual reunion of Rush Medical College will be held in Chicago, June 8 and 9, in order to permit visiting alumni to attend this reunion and to go to the annual meeting of the American Medical Association in Cleveland the week following. Special clinics will be held for the visiting alumni on June 8 and 9. The annual banquet of the Rush Faculty and Alumni will be held at 6:30 Saturday evening, June 9, at the Palmer House. Special class reunions of the tenth, twentieth, thirtieth, fortieth and fiftieth year classes will be held Friday evening, June 8, at the Palmer House.

On April 16, 1934, the Staff of St. Mary Hospital, Kankakee, Ill., assisted by the Kankakee County Medical Society and the District Dental Society, held their first Tumor Clinic. The Clinic was conducted at the hospital by Dr. Joseph Colt Bloodgood, Baltimore, Md., for 125 visiting physicians and many nurses. A banquet was given at 6:30 p. m. at the Kankakee Hotel in honor of Dr. Bloodgood and Dr. Max Cutler of Chicago. At 8:00 p. m. at the High School the general public were invited to hear Dr. Bloodgood give an illustrated lecture on Cancer and Dr. Max Cutler a talk on the use of radium and x-ray in its treatment. Over 1500 people were present. The Doctors voted the day a huge success and consider themselves very fortunate in securing such able and distinguished talent.

Deaths

Adelbert Morton Austin, Quincy, Ill.; Washington University School of Medicine, St. Louis, 1904; a Fellow, A. M. A.; past president of the Adams County Medical Society; on the staff of the Blessing Hospital; aged 53; died, March 20, at his home in Mendon, of heart block.

Stanley J. Beckett, Chicago; Chicago Medical School, 1928; aged 33; died, May 9, in the Danish-American Hospital, of injuries received when the automobile in which he was driving was struck by a street car.

Charles Oren Burke, Atlanta, Ill.; Jefferson Medical College of Philadelphia, 1887; member of the Illinois State Medical Society; served during the World War; formerly on the staff of St. Joseph's Hospital, Bloomington; aged 69; died, May 3, of chronic myocarditis, hypertension and arteriosclerosis.

Robert C. Hitchings, Donovan, Ill.; Kentucky School of Medicine, Louisville, 1889; a Fellow, A. M. A.; aged 70; died, March 26, in St. Mary's Hospital, Kankakee, of uremia.

James William Kelly, Chicago; Hahnemann Medical College and Hospital, Chicago, 1899; a Fellow, A. M. A.; Rush Medical College, Chicago, 1900; on the staff of the Roseland Community Hospital; aged 59; died, April 4, of heart disease.

John Edward Kitchen, Bone Gap, Ill.; Eclectic Medical Institute, Cincinnati, 1877; aged 84; died, February 14, of heart disease.

Birdie Eugenia McLain Springs Higginbotham, Chicago; Bennett Medical College, Chicago, 1912; aged 43; died, January 6, of toxemia, due to extensive burns.

Edwin S. Naffz, Chicago; Rush Medical College, Chicago, 1893; also a pharmacist; aged 66; died, April 15, of organic heart disease.

David Roy Nelson, Moline, Ill.; Northwestern University Medical School, Chicago, 1908; past president of the Rock Island County Medical Society; formerly coroner of Johnson County, Wyo.; aged 55; died suddenly, April 2, of heart disease.

Edwin A. Taylor, Chicago; Hering Medical College, Chicago, 1895; aged 70; died, March 25, of a self-inflicted gunshot wound.

William Von Boenigk, Chicago; National Medical University, Chicago, 1909; on the staff of the Martha Washington Hospital; aged 60; died, May 9, of coronary thrombosis.

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